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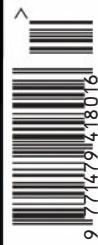
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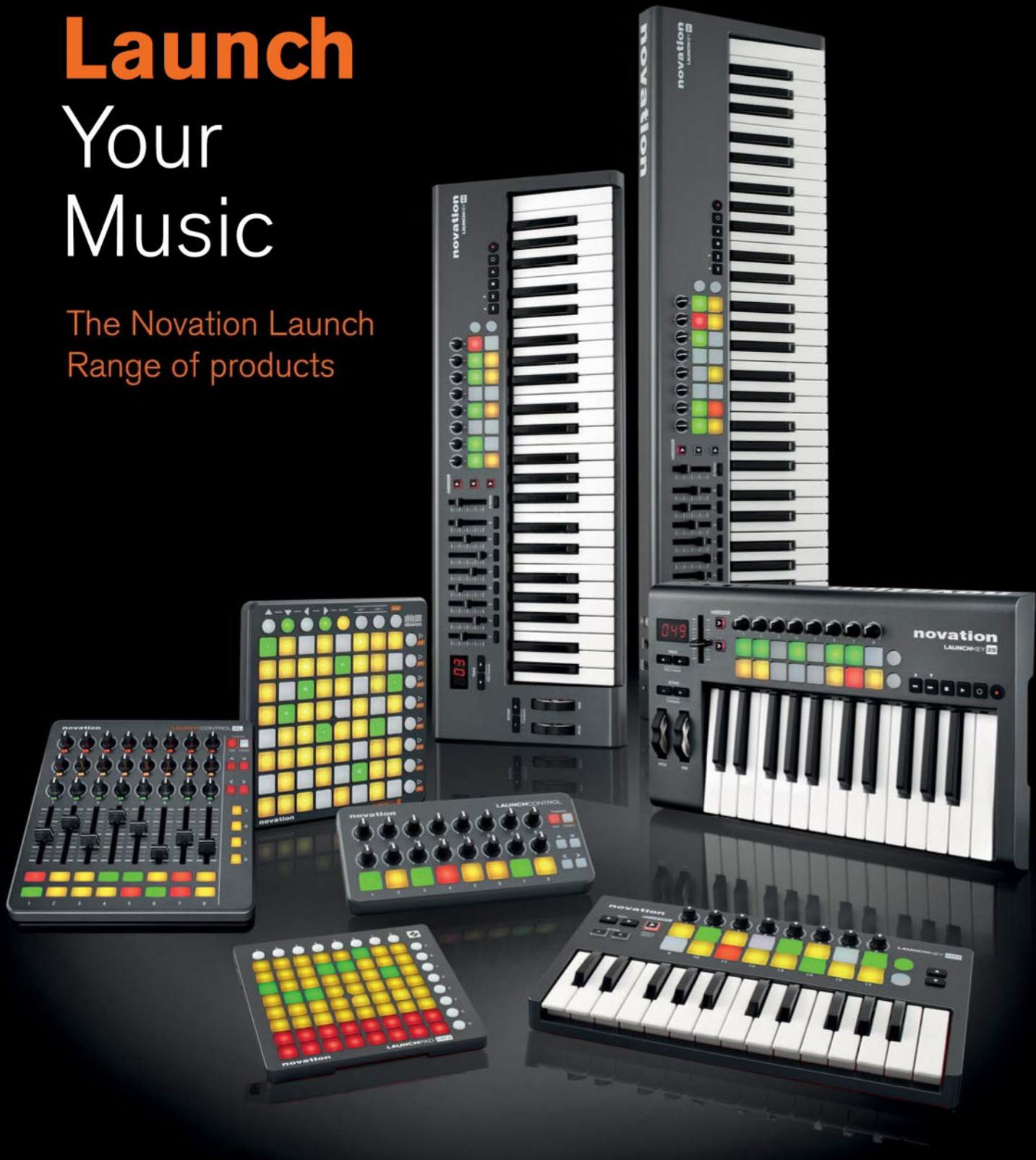
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Expert Panel



Studio Hardware John Pickford
John is a studio engineer with over 25 years of experience. He is a keen sound recording historian and has a passion for valve-driven analogue equipment and classic recording techniques.



Mixing/Mastering/Logic Mark Cousins
Mark specialises in sound design and cinematic productions. He has recorded with orchestras across Europe and is heavily involved in soundtrack composition.



Careers Editor Rob Boffard
Rob Boffard is a sound designer with a background in TV and radio work. He is a Reason evangelist, and when not writing for *MusicTech* he releases hip-hop music under the name Rob One.



Digital/Composition Andy Price
With a Master's in songwriting and a vast interest in music history and recording techniques, Andy works daily on MusicTech.net as well as regularly contributing to the magazine. He is currently heading up our Landmark Album features and songwriting/Cubase series.



Recording & Guitar Tech Huw Price
A recording engineer since 1987, Huw has worked with David Bowie, My Bloody Valentine, Primal Scream, Depeche Mode, Nick Cave, Heidi Berry, Fad Gadget and countless others.



Scoring/Orchestral Keith Gemmell
Keith specialises in areas where traditional music-making meets music technology, including orchestral and jazz sample libraries, acoustic virtual instruments and notation software.



Ableton Live Martin Delaney
Martin was one of the first UK Ableton Certified Trainers. He has taught everyone from musicians to psychiatric patients and has written three books about Live. Martin also designed the Kenton Killamix Mini USB MIDI controller and is now the editor of www.ableton-live-expert.com.



Reason, DJ & Mobile Hollin Jones
As well as teaching music technology, producing and writing soundtracks, Hollin is an expert on everything Apple, mobile or computer-related, as well as being an accomplished keyboard player.



Electronic Music Alex Holmes
Alex has been a computer musician for 15 years, having a keen passion for beats, bass and all forms of electronic music. He's currently involved in three different dance music projects.

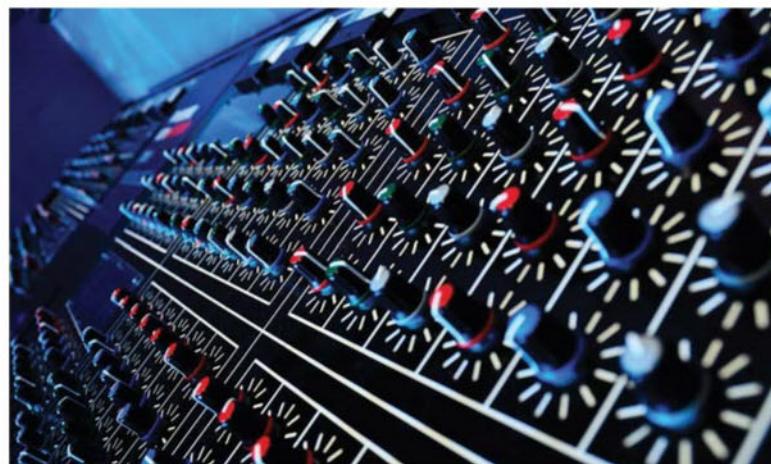


Pro Tools Mike Hillier
Mike spent five years at Metropolis Studios, working alongside some of the best-known mix and mastering engineers in the world. He is now building his own studio in south London.



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Mention the ARP Odyssey to (sadly mostly) gentlemen of a certain age and they'll go weak at the knees, and not because they suffer from arthritis (although, in all likelihood, they do).

No, it's because – along with the Minimoog – this was the synth that defined electronic music in the 70s and early 80s: i.e. when it was bloody good (yes, I have dodgy knees too). So to have a new one in 2015 – albeit 86% of its original size – should be totally unexpected, but such are the fashions in synthesis it isn't. If anything we've become rather blasé at the release of yet another analogue super synth. Which is wrong, because it really is great!

Us music makers are in a similar place as music listening buffs who are re-adopting vinyl – analogue is king once more. It truly is an exciting time to make music and to review the machines that make it. Three of the last four synths I've reviewed have been a future Moog classic, a brand new Korg MS-20 and now the new ARP Odyssey. I feel a little like the music tech journalist version of Marty McFly – if only my knees were 30 years younger. Enjoy the issue – especially our cover feature which I should have talked about here, but the Odyssey won – and head to www.musictech.net for the latest news even if it could mostly be from 1977.

Andy Jones Senior Editor

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8 CLASSIC SYNTHS THAT NEED TO BE REMADE... NOW!

In celebration of our review of the new ARP Odyssey (see p68), not to mention the new Moog modular and all the other retro madness going on, we look at eight other synth classics that should be remade for 2015. And who knows? One or two might already be on the cards...

ROLAND SYSTEM 100

January's NAMM show saw the return of the Moog Modular (and the arrival of dozens of other modular synths). Even at tens of thousands of pounds we reckon Moog will shift whatever they make of it, such is the kudos of owning a modular system, especially with the word 'Moog' on it. No other is better... unless of course, it has the words 'System 100' on it. This was the daddy of modulars, the daddy of synths, the daddy of everything. In years to come, children will say, "Who's the daddy?" The System 100 is, kids.

Chances of being remade: Evens.

Chances of being remade properly: 1,000,000/1

Selected users: The Human League. The only band that matters on the only two albums that matter.



↑ YAMAHA DX7

Some might say "why?" And others might say, "buy Native Instruments' FM7 instead" and others, surely, will simply disagree agree with us that this is a synth to be remade. But let's explain our reasoning. The DX7 sounded great. It did real sounds well, and it did imaginary FM sounds fairly well too. And those who knew how to use it could make it do spectacular things. But those who knew amounted to, well, Brian Eno really. But we reckon that there's a remake to be remade with better controllers – perhaps like those on that fabled limited run controller, or simply anything that makes the damn thing easier to use.

Chances of being remade: 100/1

Lucky users: Anyone in the mid to late 80s.

↓ ARP 2600

When we rounded up our 10 Synths Of Synth Pop a year ago we noted the ARP 2600 as being one of the "finest analogue synths ever produced" and received lots of feedback from owners and fans alike agreeing with us. We never thought it could be remade, but the arrival of the ARP Odyssey this month (see p68 for the review) could make that dream a reality. The Odyssey is a cut down and simplified version of the 2600, which has essentially been made for the masses. Now Korg has remade it and its own MS-20 semi-modular, the 2800, is surely a couple of designs and the odd solder down the line...

Chances of it being remade: Better than zero. Let's say 20/1.

Lucky users: Brian Eno, David Bowie, Depeche Mode, Jean Michel Jarre, Kraftwerk, Ultravox, Vince Clarke

■ Come on Yamaha, stop making so many trouser garments and get back on the analogue synth production line now... ■



← YAMAHA CS80

With Harrison Ford back for *Blade Runner 2* we can only hope that Vangelis is also on board to do the follow up to this classic movie. And if so, we can also only hope that he brings his Yamaha CS80 along to the studio. This eight-voice polyphonic beast not only soundtracked "the greatest movie ever made" but won many a fan (see below). Which ultimately means you can't pick them up for much under five figures these days, so it's probably about time someone remade them. So come on Yamaha, stop making so many motor bikes, boats and gentlemen's trouser garments and get back on the analogue synth production line now!

Odds of being remade: 10/1

Lucky users: Bowie, Bush, Eno, Foxx, Gabriel, Jarre, 'Werks, Numan, 'Vox and 'gelis.

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↑ ROLAND JV-1080

To say that someone – Roland even – remakes a digital rack that currently sells for barely £100 on eBay is not quite what we're suggesting here. But we'll explain, just after we've sold the original to you. Basically this was a packed-to-the-rafters sound module that you could expand by way of plug-in cards. You could create sounds quite easily considering the interface, it had effects, and loads of polyphony. So why remake it? Well it's one of the few synths left that could do with a software remake (whereas with all the others here we're talking a hardware remake). Imagine a 1080 sitting in your DAW with plug-in options waiting in the wings. With us? Course you are.

Chances of it being remade: 2/1. And probably by some 12-year old developer living in Eastern Europe, if one hasn't made it already.

Lucky users: MusicTech's editor and everyone who read his magazines in the 90s.

↓ ROLAND JUPITER-8

We've clustered a load of other Roland synths together (see below) but the Jupiter 8 deserves its own slot in the 'ready to remake' Top 8. It might have boasted just eight voices of polyphony but it sounded much lusher, much bigger and, well, just incredible really. It could be made again under the AIRA brand but with System-1 limited to emulating monophonic, that's unlikely until a System-8 is released. We've seen a new Roland that attempts to create the character of the original but we really, really, *really* want the real thing. Now, please.

Chances of it being remade: 2/1. If Roland doesn't make this within two years, we'll knock one up in the *MusicTech* shed, okay?

Lucky users: Heaven 17, The Crisis, OMD, Moroder, Duran, Dolby, A-ha, Talk Talk, Tears For Fears, Simple Minds, Devo, Flock Of Seagulls.



HARTMANN NEURON

Axel Hartmann's Neuron

synthesizer was a brave step indeed.

Coming at a time (between 2001 and 2005) when few were making hardware synths, let alone new ones, Hartmann's synth was as expensive (circa \$5000) as it was baffling. Using a complex model to create sounds from samples it was bloody complicated – indeed it took one magazine that reviewed it a mere eight pages to try and explain the process. But the results were superb (when you got them right) and the process lives on in software to this day.

Chances of being remade: In hardware? About 1,000,000/1. And certainly not by Axel who had to file for bankruptcy last time. However the time could be now as we've had a decade to try and understand the original so now we're maybe just about ready for v2...

Lucky user: Hans Zimmer of course (but is there a studio item this man does not own?).

If Roland doesn't remake this in two years, we'll knock one up in the *MusicTech* shed, okay?

Addendum

After our review of SONAR Platinum in the February issue of *MusicTech*, Cakewalk would like to clarify its SONAR Membership program, as it's sometimes confused with 'subscription'-based rental software.

- The key membership feature is monthly instead of yearly updates. New features are introduced when ready, so SONAR is always evolving. The monthly updates also include new content, tutorials and more.
- New users download the latest software, and have 12 free months of membership. After 12 months, they can renew for 12 more months of continuous updates for the lower price of traditional paid upgrades.
- However, members own everything acquired during the 12 months, so if desired, they can leave the membership program with the full functionality existing at that time.
- Current SONAR users can start a Membership for about the same price as previous paid upgrades, and will receive 12 months of membership benefits.
- Furthermore, there are now two ways to buy SONAR. Customers can pay upfront, as they always have, and have full activation immediately. Or, to reduce the financial barrier to using the software they want, they can commit to low monthly payments for a year and start using the full version from day one.
- After 12 months, they've paid for the cost of the software – so it becomes fully activated and, unlike rental programs, doesn't expire. Both payment programs are available for all three SONAR versions (Artist, Professional and Platinum).

More information from: www.cakewalk.com/Products/SONAR/Membership



↑ VARIOUS OTHER ROLAND ANALOGUES...

The JX-8P, Juno 106, Juno 60... the list goes on. They're all B+ rated items of studio hardware and we'd like to see them all come back. Roland launched the AIRA range to do classic hardware so could well do it under that moniker. But the company decided AIRA was for other gear (hence the AIRA mixer/Live controller announced at NAMM) so where that leaves the future is anyone's guess. System-1 will see more mono synths but there's plenty more gear in Roland's arsenal that we'd like to see. JX-8P packed quite a sound when it came out but it was a bugger to program, so the optional PG-800 was a must-have for hands-on control.

Odds of being remade: Evens (we're bound to see some of them, somehow)

Selected Rolanders: Blancmange, Bronskis, Jean Michel Jarre, Trevor Horn, Numan, The League, OMD, Pet Shop Boys, A-ha, Depeche Mode.

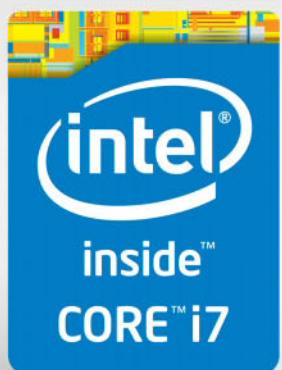


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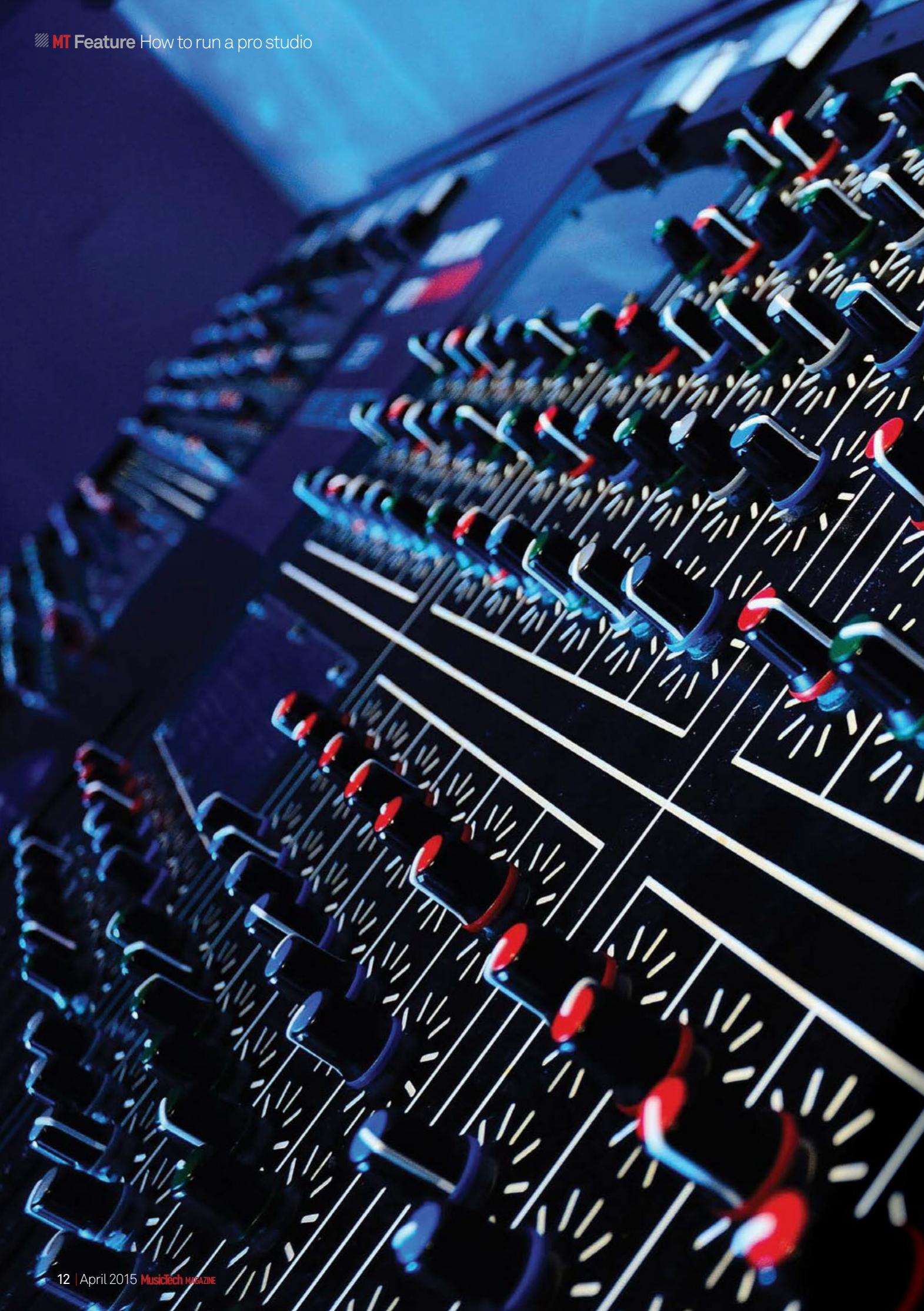
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MT Feature

How to run a pro studio

Running a professional studio is a dream to all of us, so how do you get in the door of a pro set up or even run your own facility as a money-making operation? **Rob Boffard** has the answers...

If you make music, and you want to do it for the rest of your life, then you'll almost certainly be well on your way to making it a career. By now, you've got your DAW and your favourite plug-ins, you've got some tracks under your belt, and you've probably unleashed your music on the world already.

Most producers tend to rely on their own set up, and we'd venture that most who start out don't have

A gig working in a **pro studio** is a great way to learn more about **equipment and audio**

what could be termed professional studios – it's far more likely that they'll be operating out of a bedroom somewhere. But for some, this isn't quite enough, and that's where the world of pro studios comes in.

For many producers and engineers, a gig working in a pro studio environment is not only a handy source of income, but a great way to learn more about equipment and audio. But how do you get in the door? What kind of jobs are there? And how do you set up your own studio – one that can actually receive paying clients? *MusicTech* is here to answer those questions, and plenty more, in our guide to working in professional studios.

Jobbing producer

Let's tackle existing pro studios first. And by the way,

when we say 'pro studio', we mean a space that is open to external clients to record in, that pays recording engineers and operates as a business.

Very few studios have their own in-house dedicated producers – as in, someone whose sole purpose it is to make music. These talents tend to be freelance, brought in as and when they're needed for particular projects. If a studio is lucky enough to have someone with musical talent, they'll almost always have a dual role, such as an engineer or an equipment technician. Let's take a closer look at these roles, and how you actually get to take on some of them.

Starting at the bottom of the totem pole, there's the runner. This is by far the most common way to gain access to a job in a pro studio, and it's a job you won't like. You'll be lucky if you even get to touch the equipment at first. Your job is to make the tea, fetch and carry, send out for burgers for the band members, and keep the place clean. If you're trusted, you might get tasked with some of the more boring audio jobs such as bouncing out long sessions, or editing breaths out of takes. The job is poorly paid, if it's paid at all.

Why would you do this? Because there's no better way to learn the nuts and bolts of studio work. Being a runner is an established start to this particular career path, and although you'll hate it, it's worth doing.

Next up the totem pole are the assistant engineers, sometimes called junior engineers, who work directly with the lead engineer to record the sessions. They're responsible for making sure the engineer has everything they need, audio-wise. They set up the live room, check cable connections, man the patch bay, write labels below faders, and keep the DAW sessions →

Aaron Railey Starting out



You have to be thrown right into the sound world, and learn how to do it as you go

AARON RAILY isn't a runner anymore – he's a little older now, and a little further removed from the lowest rung on the audio totem pole. But he still looks back on his time as a runner with fondness, as it helped him get the grounding that he needed for a solid audio career.

Railey started out at 16 years old, working with American engineer Jonathan Kuehlin in North Carolina. "My family already knew Jonathan," he says. "I was still in high school, and I showed an interest. He was running his studio, but he was also playing music at a local church, and that's how we connected. He took me under his wing, and showed me how things worked around the studio, how sound worked, the machines, the gear."

Kuehlin's studio may have been in a house rather than a dedicated space, but it was a professional set up, with a full control room and plenty of gear. Railey spent four years working under Kuehlin, and soon found himself familiar with all the nuts and bolts of working in a studio. He quickly progressed past being a runner, and began handling clients himself.

"Depending on the client, I worked quite closely on the creative side,

helping them write out what they were looking for," he says. "During recording, what Jonathan had me do was set up the microphones, pick the right ones, and get the studio prepared so we could just start recording. Things like patchwork, setting up new sessions, and when the clients came in. Usually they wouldn't need a run through, but we'd do a sound check."

"Jonathan is an amazing teacher, and a lot of what I retained was because of how he explained it back then. By the time I could run a live rig by myself, I'd been there for about two and a half years."

The toughest thing, Railey found, wasn't the endless busy work or the dirty jobs. It was relating to the clients, and making sure they could realise their creative visions. Railey, who now works in live sound in Seattle, says that despite the difficult parts, he couldn't think of a better way of starting out in the industry. "I think it's invaluable. It's like learning a language, and the best way to learn a language is immersion, to go to the country and learn how to speak with the people. You have to be thrown right into the sound world, and learn how to do it as you go. There wasn't a better way for me to learn."

→ ordered. Not every studio has the luxury of assistants, but there are still plenty of them around.

The engineer position is probably where you want to be. The runner and the assistants are responsible for the smooth operation of the client's recording and mix sessions, but the engineer is the one who decides how things sound. As an engineer, you're at the controls of the desk. More importantly, you're in control of a session, and responsible for keeping the client happy with regards to their sound. You have to manage your assistants, have an in-depth knowledge of the studio equipment you're using, and in general terms, have a rock solid pair of ears.

Even as an engineer, you may be operating under a producer, who could be calling the shots. And of course, there'll be other people above you: studio managers, HR directors, publicity people (if your studio is big enough), accountants and more. Like anything else, professional studios are a corporate environment, so expect them to function as such from time to time.

Equipment check

If you're reading this magazine, then the chances are you have a pretty good idea about how sound and music-making equipment work. A base knowledge is always good if you're angling for a job at a pro studio, but you may want to know more about which pieces of equipment are particularly essential. (This comes with the caveat that if you're new, and going for a runner position, then you won't be expected to know as much. For the time being, let's assume you've applied for an assistant producer role, and go from there.)

You need to have an idea of how a mixing desk (or console) works. We'd venture that there isn't a single pro studio out there that doesn't still have a good-size console in it, and it's absolutely essential to know what all the faders and knobs do. This doesn't mean you have to have an expert knowledge of the inner workings of all consoles ever made – they're big and expensive, these things, and chances to play around on them are rare. But you will be expected to know the functions of the faders, the EQ section, how a patchbay works, and how sends work. You can figure most of this out using the digital mixer in your chosen DAW (the one in Reason 8 is an excellent emulation of a desk), and when you land the job, the lead engineer will take you through the ins and outs of your studio's desk. If he or she has to explain to you how something like EQ works, you may be in the wrong profession.

While we're talking DAWs, Pro Tools is still the most common in pro studios, so learn how it works. Logic Pro X is another good one to have knowledge on.

It's not essential to know how outboard gear works as there are so many different kinds – a general understanding of effects and mixing would be useful though. You should also familiarise yourself with mic technique i.e. how to mic a guitar, the different types of mics, and how many to use on a drum kit. One of the most common tests for any new studio jockey starts with the dreaded five words, "Go mic up the drums"...

So how do I get in?

Damn good question. Like any creative industry,

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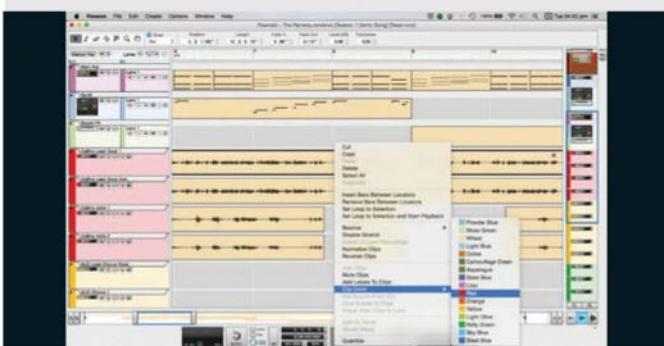
MT Step-by-Step Multi-track session



01 In this example, we're going to take a complex multi-track session and get it organised so that a client (or another engineer) will be able to see what's going on. This kind of thing can seem basic, but you'd be amazed at how much easier it will make a project when things are properly arranged. Sessions can often end up riddled with abbreviations, orphan audio takes, dead markers and much more besides, and untangling it all can be a nightmare – not what you want when clients are around.



02 Track names are first. As you can see, things in this example are... messy. We have four different vocals, all labelled 'vox', which does no-one any favours. If you're going to start mixing, you need to be able to see at a glance what and where everything is. So let's take a moment to rename things in a logical fashion, making sure that anybody looking at a track can immediately see what it is. Many projects can often involve the handover of a session to another producer or engineer, so this is a crucial step.



03 Clip colour is important as well. With everything a uniform beige, it can be hard to find the take you need – and in sessions where time is a factor, this can be a right royal pain in the backside. Most DAWs provide the option for colouring audio and MIDI tracks, and you can develop your own system for colour-coding. For example, all vocal tracks could be red, and all percussion tracks could be green. Again: it sounds simple, and it is, but it makes an enormous difference for anyone working on the session, including you.



04 Two words: mix busses. By grouping all your vocals, all your drums and all your other instruments not just by colour but by placement, you'll quickly be able to control the levels of elements in the mix. Note that placement and naming are important here too. We've named our vocals bus 'Vox Bus', and we've placed it right next to our vocal tracks (some engineers prefer their busses nestled up next to their master fader). We'll also make sure it's the same colour as our vocal tracks, which will make identifying it easier.



05 Should you print your stems? Possibly. In this example, we're using Reason – if we were sending the session to someone else to work on, it would definitely make sense to do so, as it's not as common as, say, Pro Tools. Some DAWs offer the ability to output all tracks as separate files, but if not, get ready for some time-consuming, busy work. Make sure none of your tracks are clipping, that they are all the same length, and that they have a few seconds of silence at the very end.



06 File names are important – both for the session and for any stems you print. Go for consistency. In this case, our file name is MainArp_TheReason_Printed – in other words, instrument, track name, then what it actually is. Following this logic, the session name would be saved as TheReason_Session. Such a simple thing, but you have no idea how many sessions get hamstrung because of things like failing to label parts properly. Put all these simple tricks into practice, and your clients will love you – whether you're full-time or freelance.

→ The reality, though, is that salaries vary wildly – both depending on the size of the studio, and the location. Skill is also a factor, and an engineer with a reputation is likely to command a higher salary than one without. We'll use UK salaries as a baseline here – and these come with a caveat that they are very general.

Runners, unsurprisingly, earn very little. Plenty we know have worked at or slightly above minimum wage, while the lucky ones can earn between £15-£18,000 annually. For engineers, that number rises slightly – as well it should, since it's a reasonably skilled position. Assistant engineers tend to earn within the £22-£30,000 range, depending on what studio they're at and whether they're a first or second assistant. A big studio in London, for example, will pay a little more than a tiny

One of the best ways in is to present yourself as a solution to a problem

outfit in Norwich. Lead engineers can earn considerably more, particularly if they develop that all-important reputation. Upwards of £35,000 is not uncommon, and it rises even higher if you become proficient in a particular field, such as mastering, or mixing for video games. Progressing to this level can, obviously, take

some time, but it's very achievable.

If you're a full-time employee, tax will automatically be deducted from your payslip each month. Things are a little more complicated if you're self-employed however – and remember, even if you're working at a single place for a full 40-hour-plus week, businesses are allowed to keep you as a contractor for a year before they have to take you on payroll. So make sure your tax is straight. We talk about self-employed tax stuff below.

Remember to negotiate, too – after all, nobody knows your skills better than you, and the big mistake people make, in any industry, is taking the first offer they get without question. If in doubt, go away and think about it for a bit, and try talking to other engineers to find out what they're earning. Once again, the more research you do, the easier this will all get.

Going solo

There is, of course, an alternative to all this: doing it on your own. There's nothing to stop you from setting up your own studio and running things yourself. For many engineers and producers, this is, in fact, preferable to being tied to a single studio, and you can potentially earn much more (if you're good enough) than you would if you had a full-time gig.

Of course, it's not quite as simple as just hanging out your shingle. There's a lot that goes into being freelance, and a lot you need to think about.



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→ Let's talk about equipment first. It's very tempting to go out and blow your life savings on audio gear, assuming that it will be useful at some unspecified point in the future. The reality is that while gear is important, in many cases it's secondary to the space you're going to work in. You could have the best monitor speakers in the world, but if your room is terrible, your mixes will be too. One of the first things you should do before you strike out freelance is to make sure you have the space that is either already acoustically proofed or can be acoustically proofed. Once you've done that, you can begin investing in some audio equipment.

To be perfectly honest, you don't have to shell out for expensive pieces of outboard gear at first. While these things are certainly good to have, you can do so much with just a laptop, an interface, a good pair of headphones and two monitor speakers that you shouldn't worry about breaking the bank. Obviously, if you have the money to invest in equipment, then do so by all means, but if you're on a budget, then that money is best spent getting your space ready. Your ears will thank you, we promise.

And while you're at it... make sure you pick a space that you feel comfortable working in. Think about every task you're going to be doing there. Do you have a room that will be used solely for mixing and making music? Will you be doing admin tasks in there as well? Will you be receiving clients in this room, or do you have a separate space? Remember, this is a room you're going to spend an awful lot of time in, so it's definitely worth making sure that you actually like being there in the first place.

Nuts and bolts

We're going to assume that you have the mixing and production skills to survive in this industry – and if you don't, there are plenty of other articles in this magazine that will help you get there.

We're afraid that now we have to talk about something boring: paying taxes and finding clients. We'll do our best to make it as pain-free as possible.

You'll need to tell HMRC that you're self-employed. This is as simple as heading to their website and registering, although you'll need to provide the P45 slip your employer gave you when you left your last job (don't worry if you don't have one!). Once that's done, you'll be expected to pay income tax and National Insurance on an annual basis. You can either do this yourself, using HMRC's website, or you can get an accountant to do it for you (most will charge between £150 and £300).

There are a couple of tips and tricks help you get the most out of tax – although they come with the warning that we are not tax professionals, and we take absolutely zero responsibility for anything to do with your finances! Now that that's out of the way, check this out: you can write expenses off to tax, meaning that when your final tax bill is calculated, you can deduct them, and end up paying less tax overall. That means if you invest in that kick-ass new Novation synth you've been eyeing up, then you're quite entitled to deduct it from your tax as a business expense. You

Mikko Gordon At the coalface



■ There are certain bits of gear that I love, but it's your ears and the room that are important ■

MIKKO GORDON's career is enviable, to say the least. After graduating from Goldsmiths, University of London, he began freelancing as an engineer almost immediately, running a small studio with a friend. His skills got him noticed soon after, and he ended up working closely with Radiohead producer Nigel Godrich. He's produced for artists like *Femme*, and mixed for *Atoms For Peace* and *Pendulum*. These days, Gordon knows the studio business inside and out.

"I was already quite aware that studios weren't making a lot of money," he says of his early days, "so we set [our studio] up as a space where we could work and do projects. We hired it out commercially, but it was mainly word of mouth. It was just to have a base for us. The days of opening a studio, putting out an ad and saying, 'come and use our space,' are over, unless you've got serious funds."

Gordon now has his own set up – an outbuilding in his garden, which he has customised to his liking. It doesn't stop him travelling to other studios to work with different artists. His day-to-day schedule varies, but he says he likes to schedule his mixing in the mornings. In the afternoon, he'll spend time with

clients, working through songs or producing new ones.

Like any freelancer, Gordon has to have certain equipment – but he says that his gear is less important than his space, and his ability to listen: "I think people get really fixated on gear. They're tools, just like a builder has. It's kind of funny – in the audio industry, we spend all this time talking about equipment, but a builder never talks about which hammer is better. Nice gear is great, and there are certain bits of gear that I love and which make life a lot easier, but it's your ears and the room that are important."

In many ways, Gordon says, he prefers his own set up to that of some big studios which see a lot of heavy use. "One of the things I've noticed more and more in studios is that maintenance standards are going down," he says. "Sometimes in big studios, you've got channels not working, or crackling, and that's kind of frustrating, and a sign of budgets being tighter all round."

Gordon has become a name in his own right – he's part of the growing trend among engineers to take on external management, which helps him focus on the creative side of his work.



Singer-Songwriter **Ben Montague**

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→ need to be quite careful with what you do this with – you're not going to be able to write off takeaway kebabs, for example – but any expense that is essential to running your business is fair game, and that can include utility bills as well.

Also: remember that there's a tax threshold. In 2015, the UK tax threshold is £10,000 – what's known as your personal allowance – which means you will only pay tax once you cross that particular threshold.

Now let's talk about clients. As in: how you get them, and how you retain them. The first one is the



The sad reality is that you may need to work for free, at first, simply to build up a reel

tricky one, especially if you're just starting off your career. A lot of it will come down to networking and word of mouth, and you can do yourself a huge favour by attending industry events, asking questions, and being open and friendly to absolutely everyone you meet, from receptionists to label managers. But you also need to show a good body of work, and that can sometimes be tricky, particularly if you're an engineer who doesn't produce.

The sad reality is that you may need to work for free, at first, simply to build up a reel. You should be absolutely clear with yourself at the start regarding how long you're going to do this for. After all, you've got skills, you know what you're doing, and you should be being paid for your work. But there's nothing wrong with helping mix or produce a band's album for a credit if you're just starting out.

Retaining clients is a lot easier. As long as you do exactly what you say you will, on time and on budget, then you'll keep getting used. Clients are going to be demanding and forgetful and sometimes stupid, and you have to take that in your stride. This is the kind of thing, fortunately, that becomes second nature after a year or two in the business. By then, hopefully, you'll have a long list of satisfied clients, and have a fully booked week, every week.

None of this is easy. Whether you're holding down a job in a professional studio, running your own one, or simply being a freelance gun for hire, there are going to be times when it's incredibly tough. As long as you're

Above: RAK Studios aka 'the best studio in the UK' has been home to an impressive roster of clients, from Mary J Blige and Jessie J to Paul McCartney and Primal Scream.

having fun, and as long as you're getting to do what you love, then it's all worth it. Trust us.

Pro tips

Be on time. We can't stress this enough. Musicians are sensitive enough without a studio's engineering staff not bothering to turn up. And by on time, we mean arriving a good deal of time before the musicians show. When they arrive, the studio should be as ready as it can be. This is a rule that applies absolutely everywhere on the totem pole of studio jobs, because nothing will irritate a client more than an engineer or a runner with poor timekeeping.

This applies more to lead engineers than other jobs, but you need to be able to keep control of a session. When you're behind a desk, you should never be flustered, never at a loss. You should be calm, confident and controlled. Recording sessions are complicated, and screw-ups happen. You will not make things easier by screaming at people, particularly if people, rather than equipment, are the source of the problem. Hip-hop producer and engineer Dr Dre was notorious for simply leaving if the musicians weren't behaving. The message was clear: we're here to work.

It's become more and more common for engineers to have their own manager, or management team. If you're good, and highly in-demand, then simply keeping up with the business of dealing with work requests can become insurmountable. A manager will help bring in work, deal with clients and handle payments. Just remember that they don't come for free – they'll take a cut of your fees. You should also be sure to hire someone you trust, as the music industry is full of stories of dodgy managers. If this is a route you choose to take, you'd better be damn sure you can depend on whoever you pick.

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MT Step-by-Step Prepping a studio



01 Let's talk about how to get a studio ready for a recording session, from the perspective of an assistant engineer (or a particularly trusted runner). The first thing to do, before you even enter the studio, is research. Who's going to be at the session? For how long? What do they require? Do they have any special requests you need to be aware of? What's happening afterwards? You need to know these things without having to refer to email, and although not every session will be a complicated one, they'll all run smoothly if you're prepared.



02 Time to sort your equipment. This is everything from mics and amps, to guitars and other instruments. You'll need to clear the studio of any unwanted equipment (you're probably shocked to hear that studios get cluttered and dirty...) and replace it with the gear you need. Usually, that means a trip to the studio's storeroom – in some cases, several trips. But it's better to have more equipment there than less, as you don't want to go back to the storeroom during recording if you can afford it.



03 Now's the time to make sure that all the equipment is good to go, and that it's set up to record. By this, we mean micing the drums, tuning the drum heads and the guitars, and testing the mics. It's good to have another assistant in the studio who can help with this, as it then becomes easier to check that everything's ship-shape. This is also the stage when you may need to coordinate a few people, as there could be (for example) guitar techs on hand. Be sure to get the DAW up and running as well.



04 What if equipment is broken? If it is, you want to find out now, rather than in the middle of a session. XLR cables are often the first to go, as they take a fair amount of abuse. Ditto for any sensitive condenser microphones – they pick up sound with amazing detail, but they're often quite fragile. Knowing about these problem areas beforehand can really speed things up, and if you can handle these problems before they become a big deal, the producer (and the band) will thank you.



05 Details time. Are all the connections working properly? Have the input devices been tested? Are all your plug-in licences up to date (nothing is more irritating than a random box popping up on screen during the session)? Are your backup drives in place? Has the desk been set up correctly? Are the channels a mess of tape, or have they been clearly labelled? Above all: do you have enough pens? Some of the best engineers and producers in the business are also the most meticulous. Make sure you are, too.



06 Once that's all done, it's time to think about receiving your clients. Make sure you've got food and water to hand – and if you haven't, send a runner to get some. You don't want clients wasting time, if they can help it – you want them relaxed, calm and ready to go. They get there to that point by having everything they need, and if you're the assistant, that means it's part of your job. By this point, the lead engineer or producer will be in the house, so chat to them to make sure they're okay too.

Bryan Gallant Running the show



Running The Warehouse Studio in downtown Vancouver is a big job. It's a massive complex owned by Bryan Adams, with four studios, a huge live room and more gear than you can possibly imagine. Controlling this rats' nest of engineers, runners, assistants and clients – who include AC/DC, Metallica, Nirvana, R.E.M and Slayer – takes a lot of work. To do it, you need someone like **BRYAN GALLANT**.

Gallant is a rake-thin, bearded chap whose office is on the ground floor of the building. He's been at the studios from the very start of his career. "I started as a runner," he says, "making coffee, doing dishes, getting lunch. I worked my way up quite quickly from runner to assistant, which

Because he's done **every job there is**, he can relate to everyone **who works in the studios**

was nice. I was able to get some engineering experience right away. But I decided at some point that I didn't like where my career was going. The life style wasn't necessarily for me, I guess. I wasn't really sure what I wanted to do, but ended up leaving engineering and working in archiving, transferring a lot of old tapes over to Pro Tools, and cataloguing things like that."

It wasn't long before Gallant was offered the job of managing the whole shebang. His day-to-day job includes scheduling, booking clients, working with artists – the lot. "Things like organising this microphone here," he says, pointing to a big box in the corner of the room, "that we had sent out for Michael Bublé to test out. It's not technical, because we have a full tech staff, but it's an all-encompassing kind of position."

He's a big advocate of his particular

career path, saying that because he's done every job there is, he can relate to everyone who works in the studios: "I know what it's like to be in the control room at such and such an hour, and I know all of our clients, and how they behave. I've been on the other side of the door."

But although Gallant has a healthy respect for engineers, he says that it wasn't a path for him – proof that one doesn't need to be a console guru to make it to the top. He's far more interested in managing people and in the intricate operations that are needed to keep the studio afloat.

"I care about the whole building," he says. "I care about what we've done, what we're doing, and what we're going to be doing. I think about people. I think about what we're doing with our business, and how we can make our business better."

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Phil Sisson Hiring and firing



■ The most important thing is that engineers can deal with the clients that we work with ■

Like Bryan Gallant, **PHIL SISSON** is right at the top. He manages the seminal Strongroom in London, home to records from Skrillex, Placebo, Emeli Sandé and more – but he says his favourite part of the job is dealing with the people.

This is despite the fact that Strongroom doesn't have a huge full-time staff list. "I don't spend a huge amount of time dealing with HR issues," Sisson says. "There's myself, Eva who does the bookings, Marcus the facilities manager who looks after the nuts and bolts, we have two technical staff, and we have an apprentice and they're the salaried staff. There aren't that many people to look after. We're part of a bigger company [Air Studios]. We used to have a dedicated HR person – we don't anymore, but it is almost a full time job."

Many of the engineers who work at Strongroom are freelancers. Sisson says that finding new people is all about nurturing relationships and relying on recommendations from trusted sources.

"The last person we added to the freelance roster came to us from another studio that had just closed down, and she came with some

recommendations from people we knew. It just so happened that a couple of the freelancers we had been using often had moved on to other things, so she came along at just the right time. She had already worked in another studio that does very similar stuff to us, and that's what we're looking for with freelancers: that they know how to deal with clients. Obviously it's important that their technical skills are good, but the most important thing is that they can deal with the clients that we work with. They know how to behave in the studio and they know what to expect. That was a really easy appointment, because she'd already done the job, albeit in a different studio, and she came along at exactly the right time."

Phil has never had to fire anyone, or pull anyone out of a session, but it would certainly be his job to do so if the need arose. He says that he's well aware of how competitive the industry is, and says that anybody looking to work in it should be ready for anything: "It has to be one of the most difficult things to get into. You have to be prepared to put in long hours and sacrifice your social life, but it can be done. You just need to get off your backside and start doing it."

→ There are plenty of other jobs in studios besides engineering or producing. Many studios, particularly big ones, have their own workshops where they can repair and customise kit. If you're a dab hand with electronics, there's nothing to stop you from trying to find a role there. And as we've mentioned, all studios need their human infrastructure – PR, HR, payroll, office manager. What we're saying is: if you're trying to get in on the action, make sure you use your existing skills and qualifications, and consider every option.

Own your own studio? Keep it clean. This applies even if you aren't receiving clients. Unless you're a dedicated creative who absolutely has to work in a messy environment, then you'll find that your mind gets just as messy as the space. A single cleaning session once a day where you clean out the old coffee cups and takeaway boxes will make a real difference to your work. We know this sounds obvious, and even a bit maternal, but if you get into the habit of doing it, you will thank us.

There's nothing that says you have to strike out on your own. If you can find another engineer or producer willing to go in with you, you'll find that you're able to split the cost quite happily. You don't even have to have the same business; you could just agree to share the same space, and both contribute to the costs. One thing though: make sure you get the terms of your relationship down in writing, including what will happen if things go sour. Do this no matter how good a friend this person is.

It's worth investing in infrastructure. By this, we mean a solid internet connection, extra hard drives (possibly a cloud drive) and a secure FTP server to send and download large files. Often these things can be achieved with a minimal amount of hassle, and at very low cost. Something like WeTransfer offers a solid budget option for transferring files, and if you're a paid customer, you can customise it to your heart's content. And don't forget to pay attention to things like your website, branding and logo – and getting professionals to handle all of the above when necessary.

Owning your own studio as a freelance engineer and producer is exactly the same as going freelance in any other field. And the big piece of advice that gets given to anybody going freelance is this: emergency funding. Make sure you've got enough to cover your expenses – and that's all your expenses, from rent to car to electricity to business expenses – for at least three months before you start. Even for the most well-connected people, going solo can be hard, simply because it can take time to get paid. This is a fantastic thing to do for a living, but it's not worth starving for.

Your hours are going to be long. Whether you're a full-time employee or solo freelancer, you're going to have weekends, evenings, and even early mornings where you're chained to the mixing desk. That's the reality of the industry, which doesn't always operate under 9-to-5 rules. Knowing this, it's quite easy to get sucked into an unhealthy lifestyle, and that can affect the quality of your work. Make sure you take care of yourself before anything else, and in some cases, it's okay to say no to a piece of work that you know isn't going to be worth it. Good luck! MT

MT Step-by-Step A killer demo



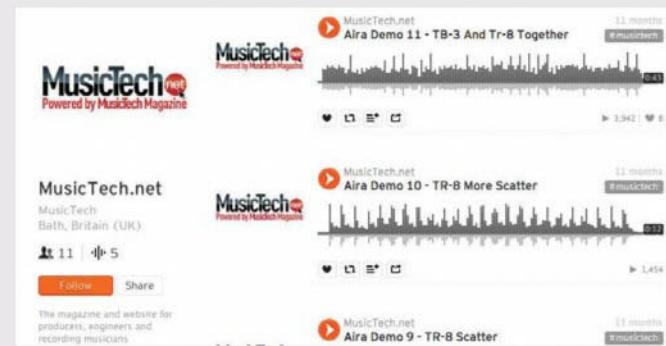
01 If you're a freelancer, or looking to land a full-time position, a demo reel of your production, sound design and engineering skills should be a top priority. It's too easy to fall into the trap of simply displaying a collection of Soundcloud clips online. While this is a good start, you'll find that you get much better results if you combine your skills into a single package, with one link, that you can give to anybody who wants it. Create an Electronic Press Pack like the one shown.



03 Choosing the order in which things are arranged is crucial. If you can, start small, with things like sound design elements and vocals, then progress to track segments that you've mixed or produced. Build to a climax, and keep each segment short and sweet. There should be none of what broadcasters refer to as dead air. And by the way, if you're just starting out and don't have a portfolio yet, just make one yourself. You don't need clients to put together a package that shows off what you can do, although clients always help.



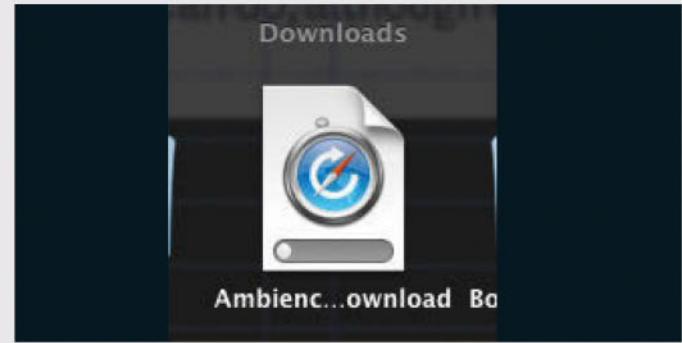
05 When you're mixing all of this together, don't forget to actually do some mixing. Even if you're using previously-mastered work, you're going to end up with a lot of pieces of audio at different loudness levels. Make sure everything is balanced before you bounce it down – and you might want to consider adding some very light compression or limiting as well. You want this thing to be loud, punchy and powerful, and you shouldn't be afraid of pushing things a little more than you normally might.



02 Even then, a randomly-arranged mix of your work won't do you any favours. You need to make the best out of it, and have it be memorable. The first step, obviously, is to pick your best work. Only select the songs, sound effects and mixes that are your absolute best, where you were firing on all cylinders. You're aiming to keep it short – no longer than one and a half minutes (two at a push). You want to wow the listener straight away.



04 One of the most interesting ways to put this all together, assuming you've got a microphone and are comfortable using your own voice, is to narrate the demo, creating a story for the listener to get into. Be as creative as possible – you can process your voice to show off your mixing skills, chop it up and create a track from it, or just tell the listener exactly what they're hearing (in as few words as possible, of course!). Doing this puts your own personality on the demo, and makes it memorable.



06 Now you need to think about how to deliver it. Sure, you could simply give out a website link – but even a single page on your site can have multiple parts in its address. You should aim for the simplest address possible: something that could fit on a business card, in a tweet, or in an email. Services such as bit.ly will shorten URLs, while tinyurl.com will let you create a custom address. Just do us a favour, and don't bother with QR codes. They're the worst thing ever invented.

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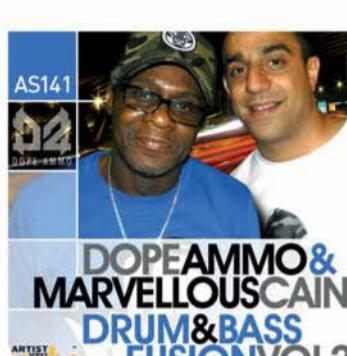
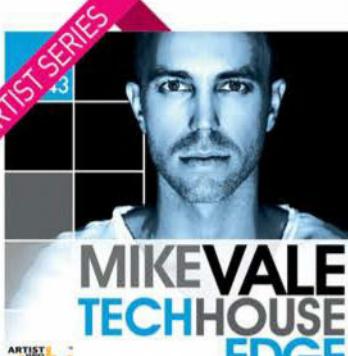
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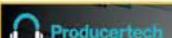
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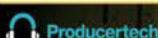
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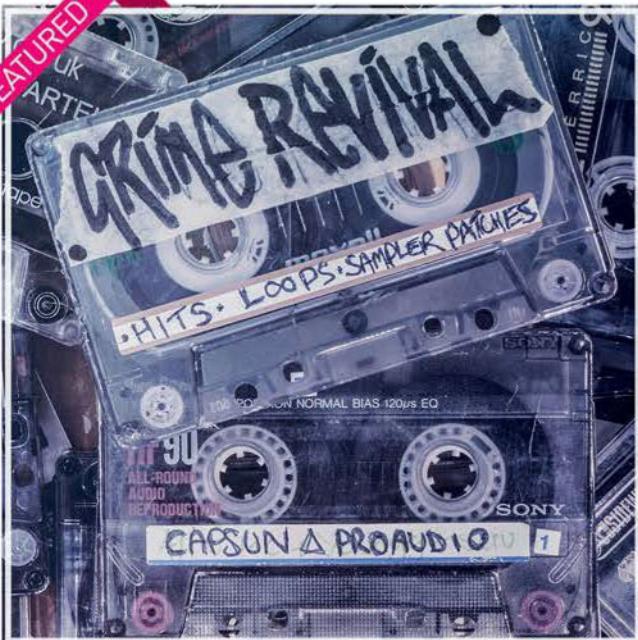
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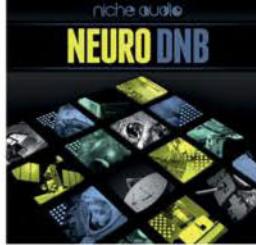
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The tracks

- 1: Mr. Self Destruct
- 2: Piggy
- 3: Heresy
- 4: March of the Pigs
- 5: Closer
- 6: Ruiner
- 7: The Becoming
- 8: I Do Not Want This
- 9: Big Man with a Gun
- 10: A Warm Place
- 11: Eraser
- 12: Reptile
- 13: The Downward Spiral
- 14: Hurt

A photograph of the album cover for "The Downward Spiral" by Nine Inch Nails. The cover features a yellowish, textured background with dark, smoky, and organic shapes. The title "nine inch nails: the downward spiral" is printed in a dark, lowercase font across the middle. The overall aesthetic is moody and atmospheric.

nine inch nails: the downward spiral

NINE INCH NAILS: *THE DOWNWARD SPIRAL*

Produced By Trent Reznor, Mark 'Flood' Ellis at Le Pig Studio, California
Mixed By Sean Beavan, Bill Kennedy, Alan Moulder
Engineered By John Aguto, Brain Pollack

A grim genesis resulted in one of the most acclaimed albums of the 90s. Over 20 years since its release Trent Reznor's harrowing opus *The Downward Spiral* continues to sonically enthrall. **Andy Price** takes you where you (might not) want to go...

What initially began as a solo side project for the young and ambitious Pennsylvania-based musician Trent Reznor, Nine Inch Nails eventually overtook Reznor's entire musical trajectory, and the subsequent sound and mood of the increasingly popular industrial rock genre in the 90s. Debut album *Pretty Hate Machine* was an often abrasive collection of material that Reznor had been working on for years prior to the recording, however through the making of that promising debut, Reznor became close to several iconic producers including Mark 'Flood' Ellis, whose credits had included producing the mighty U2 album canon and the dark textured depths of Depeche Mode's *Violator* among many others.

Reznor and Flood cemented their relationship by collaborating once again on the quietly released EP *Broken*. During the making of this EP, Reznor became frustrated by the demands of his record label TTV, who questioned the increasingly experimental direction Nine Inch Nails had begun to take. So, alongside his manager John Malm, Reznor launched Nothing Records, initially as a way to get out of the unworkable contract with TTV and instantly began to work closely with Flood on his new label's first major release and the album that would rocket Nine Inch Nails into the consciousness of a generation: *The Downward Spiral*.

At this time Reznor was heavily influenced by David Bowie's *Low* – Reznor subsequently told *Kerrang!* Magazine that when he picked up the record he "instantly fell for it, I related to it on a songwriting level, a mood level and on a song-structure level... I like working within the framework of accessibility, and songs of course, but I also like things that are more experimental and instrumental."

Hey Pig

One of Reznor's main ambitions with *The Downward Spiral* was to create an album that, in his own words, "went in ten different directions, but was all united somehow". Reznor's DIY attitude to album creation extended to studio use as well. Rather than booking time at a pro studio to record *The Downward Spiral*, Reznor instead decided to build his own – the uniquely (and grimly) named Le Pig.



Photo © Getty Images



(Above) Reznor kitted out Le Pig with, among other classic instruments, a Korg ARP Odyssey (new one shown!).

(Below) Reznor's unforgettable delivery, provocative lyrics and his love of experimental effects mesh perfectly in *The Downward Spiral*.

Famously Le Pig was situated in the same house where, decades previously, Charles Manson and his 'family' had murdered actress Sharon Tate and daubed the word 'pig' on the wall in blood. Matters of taste aside, Le Pig was impressively kitted out with a variety of tech: from modular synths including the Oberheim OBmx and classic Korg ARP Odyssey, to Akai drum programmers, Studer tape machines, a Pro Tools equipped Mac and a large Amek Mozart console that included several Rupert Neve Modules.

Part of the rhythm setup (aside from the live skills of touring drummer Chris Vrenna) included a Roland R-70 drum machine and a raft of classic samplers, including Kurzweil K200 and the Akai S1100.

Much of Reznor's songwriting at this point was driven by an experimental edge. Material such as *Ruiner* was a strange combination of synth chords and drum loops, with Reznor himself playing the central guitar solo. This solo was played through a Zoom Guitar Effects pedal in an attempt to emulate a Pink Floyd type sound, but instead he ended up with something very different, and

■ Much of Reznor's songwriting at this point was driven by an experimental edge ■

he decided to expand this initial experimental idea into a full track on the record.

The first track on *The Downward Spiral* begins with a strange repetitive thudding sound – a sample from George Lucas's dystopian film *THX 1138*: it's the noise of a prison guard beating a submissive prisoner. It then explodes into a fuzzy, cacophonous maelstrom of sound, with a creepily withdrawn lead vocal line from Reznor before the driving, stomping chorus of *Mr Self Destruct* unveils the first example of the Reznor growl on the record.

This track also showcases the unique guitar talents of Adrian Belew, the former King Crimson, Paul Simon and David Bowie axe-slinger, who Reznor would describe as, "the most awesome musician in the world". Belew was asked to contribute in a rather unique fashion to *Mr Self Destruct* among other tracks on the record. In an interview with *Guitar World* back in the 90s, Reznor recalled this process. "I said to Adrian: 'play whatever you want'. Then he said, 'what key is it in?' – and I had to say, 'Uh, I don't remember, it's probably in E.' Reznor said that he'd ask Belew to "concentrate on a rhythmic part, and then another time, think in terms of the

→ countermelody. He pulled out a bunch of great sounds that he never gets to use."

Blew would also apply his free-riffing abilities to several other tracks on the album, including *The Becoming* on which he played through a ring modulator, because... well, why not?!

The record continues with *Piggy*, originally inspired by a short poem that Reznor had written. The arrangement keeps a steady and restrained 65bpm with a simple electric bass-led sound and breathy vocal performance, standing in stark contrast to the aggressive power of the opener. This track also sees the introduction of a short musical motif that's peppered throughout *The Downward Spiral*, played on the organ towards the end of the song.

Heresy then roars into life with a synth bass and stomping drum loops. A nihilistic lyrical attack on organised religion, *Heresy* clearly signposts the direction of one of Reznor's up and coming protégés – one Marilyn Manson.

The utterly bizarre time signature that makes the standout track *March Of The Pigs* so memorable actually alternates 7/8 time in the verse with the chorus-type section flipping to a standard 4/4 time. The simple piano post-chorus is also in a very restrained 4/4 time – although the bpm is 269. This erratic arrangement underlines one of Reznor's main conceptual themes on the album: that of a man shedding his identity, in an often violent and self-destructive manner. He'd express this through both his pained lyrics and though the kaleidoscopic use of sound and sudden rhythmic shifts.

Like an Animal

Using a heavily treated kick drum-sample from Iggy Pop's *Nightclubbing* to propel it along, the infectious, synth heavy *Closer* would become the defining song of the record, placed on an unending heavy rotation on the setlist of rock club DJs around the world. The shockingly direct refrain, "I want to f**k you like an animal" had an undeniable catchiness, referenced frequently in popular culture and became Nine Inch Nails fan-mantra.

Reznor recorded the vocals for *Closer* with a Shure Beta 58A while standing right next to the console and directly into his Pro Tools rig. This direct approach bypassed Reznor's then-standard route of recording vocals on to a Studer A800 MK 3 Multitrack tape machine, giving him a much more fluid approach to recording vocals, as and when required. He used this direct-to-computer approach on the majority of tracks on the record before mixing down to an arrangement to tape. The peculiar vocal effects at the end were generated by running them through an Eventide H3500.



Classic Akai samplers like the S1000 were used alongside live drummers including Chris Vrenna to create an unforgettable sound.

The track *I Do Not Want This* opens with heavily treated loops, which then become pure and untreated as the song leaps into its chorus. Many of the loops used on *The Downward Spiral*'s tracks were assembled using recordings of live drummers including Chris Vrenna and Stephen Perkins, which were then re-assembled and occasionally treated by adding synth and Pro Tools manipulation. A way of working which Reznor would refer to as "very creative".

You can have it all...

After a range of colourful, occasionally abrasive but still aurally fascinating tracks, *The Downward Spiral* reaches the end of its conceptual arc with the title track. A beautiful piece which resurrects the melody used earlier in both *Piggy* and *Closer*, however this time it's in the key of E Major. The arrangement is bolstered by use of heavy synthesisers and loud guitar before the rhythm section neatly segues into the album's epilogue...

Much has been written about the reflective and beautiful *Hurt* – especially in the light of its new lease of life following the success of the heartbreakin 2002 cover by country legend Johnny Cash. The original version has a similar air of melancholy, although the arrangement is significantly different to the more well-known Cash version. A vast array of sounds, including distorted guitar loops, intersperse with an almost whispering vocal from Reznor which eventually grow into a powerful and memorable chorus, leaving a profound lasting impression.

The album's release was met with near universal critical and fan acclaim and generated over four million sales. This success cemented both Trent Reznor and the Nine Inch Nails entity as an important creative force in modern industrial rock music. The album's often disparate, varied production from both Reznor and Flood, creative use of sampling and instrumental texture would be widely imitated by artists both sides of the pond, resulting in Trent Reznor being sought out as both a producer and creative guru by many big names in the music world. MT



The players:

Trent Reznor

Setting up new studio Le Pig, and filling it full of gear, Reznor delicately crafted the various elements, both musical and thematic, that make up *The Downward Spiral*.

Mark 'Flood' Ellis

Prolific producer Flood was personally chosen as co-producer after the positive experience of producing the synth-heavy *Pretty Hate Machine*.

Adrian Belew

Former King Crimson and David Bowie guitarist Belew was asked to use the guitar in a reactionary, expressive way on *The Downward Spiral*, creating many melodies and hooks improvisationally.

Chris Vrenna

Full-time live drummer Chris Vrenna was used throughout *The Downward Spiral*. His chopped up live loops were incorporated in addition to the various electronic percussion.

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MT Feature Industry Guru



ANDY MUNRO

Andy Munro is a world-leading acoustics expert and has worked as an engineer and designer with some of the world's biggest bands and audio companies. In celebration of his latest monitor project, the MunroSonic Egg, *MusicTech* catches up with Andy to talk acoustics, careers advice and studio technology...

Andy Munro began an extraordinary career in audio in 1972, working as an engineer at Shure where he ended up designing systems for venues, and where he worked with artists such as Led Zeppelin and The Rolling Stones as well as prestigious clients including the BBC.

With his own company, Munro Acoustics, he has worked for some pretty illustrious clients too (Sony and Disney to name but two) and designed many notable studio installations across the world, not to mention becoming one of the founders of the renowned Dynaudio Acoustics in 1990. With the Munro Egg System Andy has re-entered the home, project and professional studio worlds with a monitoring system which is as successful as it is unusually designed.

Having recently achieved not only a Lifetime achievement award from *Pro Sound News* but a whopping 9/10 for the brilliant Egg monitors in last month's *MusicTech*, we thought it was about time to catch up with Andy and glean the following words of wisdom and advice...

Munro (above left) and Cuan studios, one of his favourite recording rooms with 'a perfect natural acoustic'.

MusicTech: Tell us how you got into the world of studio acoustics.

Andy Munro: I guess the original idea came from a five-year post-university stint with Shure during which time I worked in the UK and USA as a technical marketing and systems integrator. I realised that good sound reproduction was largely dependent on acoustics, and my mechanical engineering background gave me head start with the formulas and science!

I spent most of the late 70s working with sound companies and bands sponsored by Shure, notably Showco, the Rolling Stones and Led Zeppelin. It was a great time to be in audio engineering and the pace of development was incredible, with studios becoming laboratories of sound. I started my own company in 1980 and things moved very quickly. My first studios were based on textbook BBC and EMI manuals, but I had also learned a lot from my time with Don Davis at Synergetic Audio Concepts, which was a thinktank for great ideas in sound system design. That's where the whole time-energy-frequency approach to acoustics became a useful tool as opposed to theoretical physics. I bought one of the first dedicated, computer-based analysers and the whole ball started rolling with that.

I co-formed Dynaudio Acoustics in 1990 when I was building custom monitor systems using Dynaudio drive units. I first heard of them at AIR studios in London where Dave Harries had built a speaker with them. In my opinion they're still the most natural sounding speakers, and we still build special systems for individual clients.

MT: Can you remember what it was you wanted to achieve in the industry when you first became part of it?

AM: My goal was always to be a mixing engineer or a successful designer of acoustic spaces and sound systems. I always had a good ear but I'm not a natural businessperson and I knew I would only reach my goal through making things sound so good that people would want what we do. I would say we – and I do include the whole team – have ended up achieving that. It has taken years of fine-tuning to make the business model work as well as the sound engineering!

MT: What's been the highlight in terms of success?

AM: I would say the product that people respect and trust is the Munro Acoustics brand itself. We always get the job done and if there are problems we fix them. Trust and integrity are at the very core of our work and we don't employ any smoke or mirrors to achieve that. I've had to fire a few people along the way and it's always been because they didn't have that attitude. Through that I have become involved with other companies such as Dynaudio (as a founder of Dynaudio Acoustics) and lately with Sonic Distribution with the Egg project. MunroSonic is now a reality and the Egg speaker concept is gaining fans round the world.

MT: You allegedly have a very good explanation for the decibel principle – please share it!

AM: Ah, I have a few of those but the one that blows people away is the fact that if you take the dynamic range of sound power that we can hear – roughly 140dB between the quietest and the loudest sounds

I realised that good sound reproduction was largely dependent on acoustics

– it is the equivalent of the distance from one metre to the nearest star! That's basically because 0dB is referenced to 10-12 Watts and 100 (102) Watts is the loudest music we can stand, so hence the galactic range of 10¹⁴ metres. No audio system can match that so we humans are pretty amazing!

MT: What other aspects about sound do you get asked about?

AM: Most people treat sound as if it's just a physical quantity that you can move from A to B and even store without altering its very essence. Not so. Sound in the sense of communicating audible, intellectual ideas, is the flow of energy from one source to another destination via the medium of air. Every part of that path is capable of degrading the original. It's the relationship between time and space that defines a sound.

Now that so much music is electronic a lot of the natural interaction between musicians and the studio environment is lost, which is a pity. It's



The Eggs in Mike Hedges' studio with a console he inherited from Abbey Road (and one used on *Dark Side Of The Moon*).

interesting and not surprising that so many plug-ins are trying to capture the essence of a room or even a valve amp with all its inherent distortions.

MT: What is the biggest acoustic 'mistake' that you come across in studios, and what is your cure-all advice for it?

AM: The biggest problem in most rooms is the balance between the direct sound from a source and the effect the room has on it. At low frequencies a loudspeaker radiates energy as a spherical wave-front (think of blowing up a balloon) and even at 1m radius the surface area of that balloon is 13m². Our ears have a 'capture' area of 0.04 m² so nearly all of that energy goes into empty space. That space then distributes that energy according to the dimensions and boundaries, by forming waves that bounce back and forth or hopefully get diffused and dispersed so that the energy decays smoothly and evenly at each frequency.

Now here's the rub; our ability to resolve frequency is dependent on time, so 50Hz requires 20ms of time for the brain (and a spectrum analyser) to work out what's there and 1000Hz only requires 1ms. Sound travels nearly 9m in 20ms so a small room will mess with the low frequencies while the brain is trying to figure out what's going on. To make matters worse loudness depends on the time a sound lasts, and at low frequencies that time can be 200ms. And as a final punishment the inner ear lumps low frequencies into bundles called critical bandwidths, so to hear individual notes we learn how to compare beats (as any guitarist knows well). All this means controlling low frequency energy is the hardest thing to get right. We use rules for optimum reverberation times and room dimensions to get predictable results.

MT: When it comes to monitoring, what's the most common monitoring mistake people make either in terms of position or process?

AM: I guess the biggest mistake is to use the wrong size of system for the room and the mix situation. A big speaker with several drivers needs distance and space to resolve into a single, phase coherent

→ wave-front. A near-field speaker is closer to a point source but needs to be in its own space to avoid strong early reflections that can cause interference and cancellations. Plonking speakers on top of a desk and too far apart creates a hole in the middle and makes it difficult to hear phase cancellations in the mix. I am a great believer in separate stands and perfect equilateral triangles, so adding two speakers together gives 6dB summing, and reversing polarity of one feels like your brains are being sucked out through your ears. Mixing and listening are two distinct processes, and a monitor that can handle one is not always ideal for the other.

MT: Do you have any specific principles of monitor design that you can share?

AM: Trust your ears! I have come across many speakers that measure well but do not sound natural. A good speaker works with all kinds of music and speech. I work closely with both electronics and transducer designers to get the best possible combinations. I always do the final tuning in my own studio. Dynamics is also vital to me, as a monitor that compresses sound makes it impossible to judge a mix balance correctly.

Apart from good drive units, the single most expensive component in a monitor should be the power supply.

MT: Which music production techniques are you most commonly asked about?

AM: I am often asked, 'what's the best sound level to mix and balance?' I explain that our hearing sensitivity is not linear. At sound levels above 85dB our sensitivity gradually flattens out the spectral response as our ears start limiting mid frequencies. Whereas, at lower sound levels, the ear is less sensitive to low and very high frequencies. So an average of 85dB is a good compromise and leaves at least 20dB headroom if you set up your system well. This is how all feature films are mixed, so that cinemas get a consistent product.

MT: And when asked that, what's your reply?

AM: It's all a question of balance. Our hearing evolved to hunt food and stay alive so it works in a highly specialised way. Inferior listeners either starved or more likely got eaten! Spatial awareness and the ability to locate sounds comes from that and we mess with it at our peril. Really talented sound mixers are good at bringing out aural clues that enhance the basic sound.

MT: What advice would you give anyone entering the world of music production with the view to making a living from it?

AM: Find out if you're any good at it! Some people can hear the best aspects of a recording or performance and then add a gloss and spatial dimension that makes it special. I once heard a rough mix of a very successful band's studio sessions and I was dismayed. Two months later the



Dave Bascombe (left) working at Sphere Studios with Munro's custom surround 5.1 monitors. Lobo Studio on Long Island, New York, (right) shows off Munro's custom M4 monitor system.

finished album went straight to the top of the US charts and sold 15 million copies. The producer did a good job and still does.

MT: What is the future of music production?

AM: Potentially music production has a great future but the financial model needs serious consideration. I believe musicians need to work together in an interactive way in good acoustic environments to make great ensembles. Unless we come up with great live acts that have the time and resources to spend several weeks in a good studio then we shall not see the likes of the Stones or Zeppelin again. Each generation has its true innovators and those who push music into a new place. I'm not sure who really deserves the accolade so far this century.

Trust your ears! I have come across speakers that measure well but do not sound natural

MT: How would you like to be remembered in terms of your personal and company profiles?

AM: Individually, as someone who tried to push studio design and acoustics beyond the reach of the black art and 'smoke and mirrors' brigade.

As a company, one that brought together engineers and designers to form a team capable of building great spaces for the enjoyment of all who love good sound.

MT: And finally a gratuitous plug for your company and any upcoming products?

AM: We recently designed 30 studios for the new BBC Broadcasting House and 150 editing and mix rooms for a massive complex in India as well as the bulk of the Tile Yard studio facility in London. Our latest monitor design, the MunroSonic Egg, has sold very well in its first year and drew great praise from reviewers and users worldwide. The smaller Egg100 will hit the market in May and that will (I believe) redefine what can be achieved with a small monitor system.

We're also currently designing a completely new mastering system that will be both stunningly accurate and affordable, even in the current financial reality. There are five very capable and motivated designers at Munro Acoustics and that says a lot about what we are committing to in this business. I hope enough people will continue to demand the quality to justify what we do! **MT**



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Harmony and chords

To get the best out of your compositions, it's essential to get your head around harmonies. **Andy Price** delves into chords, keys and structure, and explains the bedrock of songwriting...

Harmony is something we all subconsciously are receptive to every single time we listen to a piece of popular music. In simple English, it refers to the basic relationships between the notes that make up chords. As discussed in Part 2 of this series, understanding our keys is a hugely important area to grasp. This time however we're going to explore harmony in sharper-focused songwriting terms and look deeper than the surface-level relationships.

Firstly, let's talk about what we mean when we say the word 'harmony'. It's not exactly as essential as the



harmonic bible with which to build their compositions. It's something that we take for granted as something that's inherently 'known' – indeed, songwriters who are particularly skilled will have a knack for hearing the correct harmonic combinations by ear, but how do they know how to do this? Well, a simple perusal of the basic theory might be of help here...

Harmony central

Chords are made up of three (or more) notes ringing at the same time. This simultaneous ringing is what's technically known as the harmony between the resultant sound frequencies generated. The harmony of the composition as a whole requires a more technical understanding of the relationship between chords and why certain chords work well together.

A chord in the context of a song serves a purpose musically that's all down to the what notes are contained within it – making it either a major, minor or diminished, and ultimately your choice of root chord is purely down to the mood you intend to evoke with your song.

So let's take a top-down view of this in standard keyboard terms. If we're to begin writing a song in a major key, then the best example to use is the C major scale. Every successive key after the note of C serves as the successive notes in the scale, and our major chords are made up of the first 'root' note, the

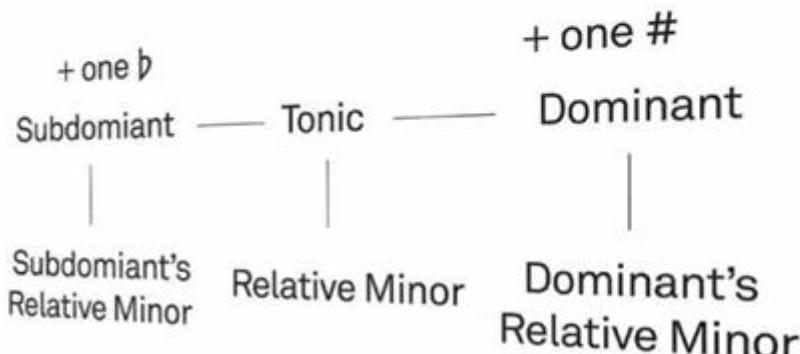
A great proportion of music from around the world is technically un-harmonic

fundamentals of music such as rhythm and melody – in fact a great proportion of music from around the world is technically un-harmonic. Indian music for example consists of a majority of melodies which have very little to do with each other, moving around the framework of a basic rhythm with little recourse to basic harmonic structure, as a western ear considers it. Chords and their arrangement are a particularly western concern.

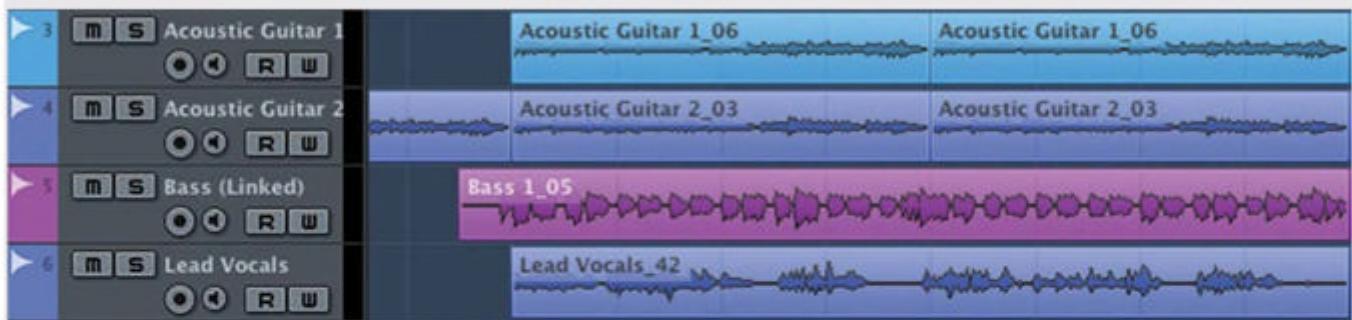
The bulk of western music uses the seven-note major scale and every songwriter uses this as a

FOCUS ON... MODULATION

Although keeping your harmonic progressions within one key is pretty much de rigueur for most 'standard' songwriting, it's often interesting and potentially beneficial to add chords from different keys into your mix. Key modulation can be utilised at any point in a song, for as long as you feel is necessary. It makes harmonic sense to modulate to a key that already has a close relationship to the one you're in. Use a 'pivot' chord to reach the new key naturally – rather than making an abrupt change – although modulating to completely unexpected chords has its advocates and certainly can be a whole lot more fun! Use the relationship diagram here to assist you with this concept, as well as the terminology.

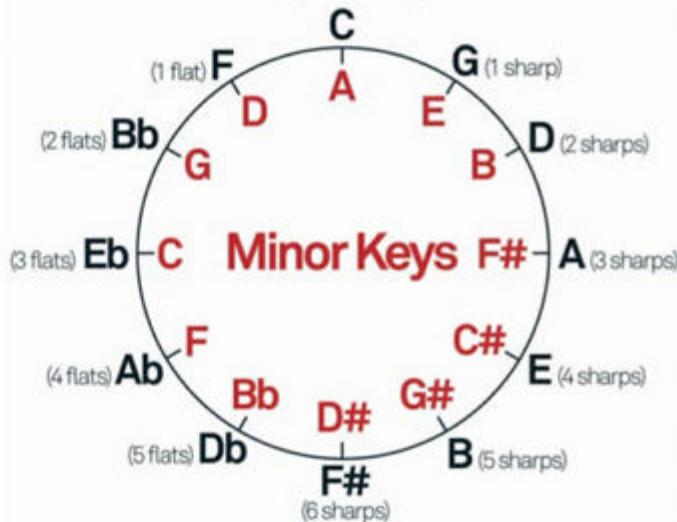


MT Step-by-step Where to start?



01 In this song idea, I've recorded a couple of building verses at a relatively restrained and quiet volume. One (uncompressed) track of lead vocals with occasional backing vocals sweeps in at the end of both, and this restrained vocal performance builds towards a large chorus. The mic is positioned relatively close to my mouth at this point.

Major Keys



02 I then emphasise the large chorus with a raft of more backing vocal tracks, recorded in a different environment and at a greater distance from the mic. I can let rip from a performance standpoint and record myself singing the relatively simple chorus melody at a great volume, in a deep register and at a high pitch which I can mix and merge with the other tracks.



03 Before and after each chorus (in red) I've added MIDI strings which rise and fall, massaging the listener into the chorus. During the chorus the strings are replaced with high-register lead guitar to underline the perceived volume increase. These dynamic considerations help turn a melodically straightforward song into something more exciting.

third note (skipping the D) and then the fifth note (skipping the F). We now have a major chord.

If we start with D as the tonic, then adjust our fingering accordingly we have another major chord. In fact we can keep moving our triad shape all the way through our successive tonic notes seven times. Of all the scales, C Major is perhaps the most straightforward to grasp – and serves as a simple illustration of how chord sequences work.

The seven triads you have now in the C Major scale each have a definition: either major, minor or diminished, aside from the auditory differences. In the next section I'll explain why these chords have their respective allocation.

The science of semitones

Let's take things very simply. A semitone is the smallest interval possible in the western scale of music. It covers the distance between two notes which are equal to one hundred cents (a 12th of an octave). So basically, each key (white and black) on a keyboard is equal to one semitone of difference between its prior and successor.

In the context of a major chord then the audible gap between the first note and the second note in the triad is four semitones, and the distance between the second and third is three semitones. However with a minor chord you'll find that the distances are a little different: between the first and second note of the triad there's a three semitone gap, and between the second and third note there's a gulf of four semitones.

But we're not finished there – diminished chords are also important aspects of a major scale. Between the three note triad of a diminished chord we have an equal distance of three semitones dividing each note. These varying semitonal gaps are the reason why chords sound distinct from each other, and why the human brain automatically registers certain chords as minor or major (or diminished if you're adept enough!).

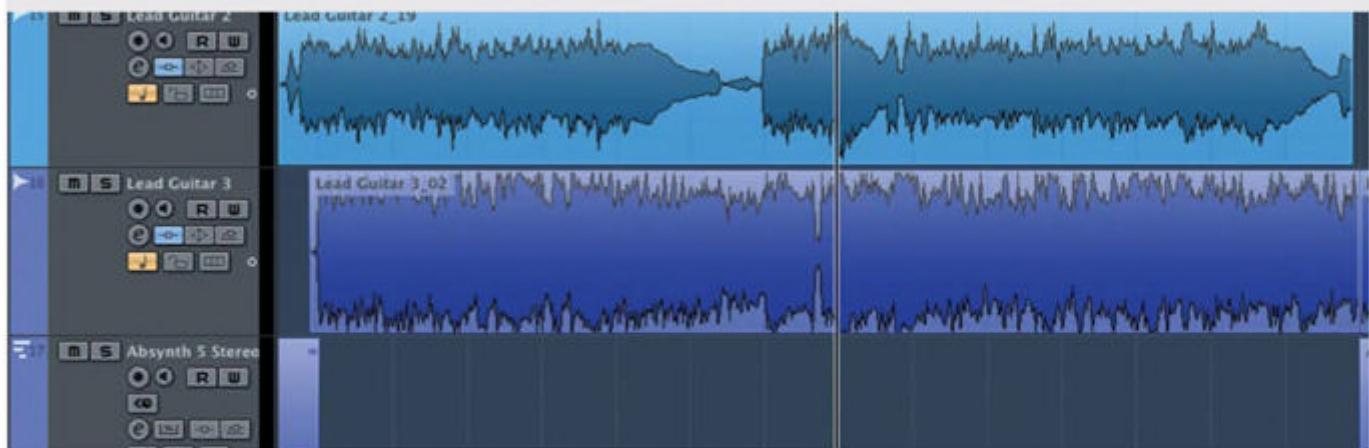
The next step in understanding all this is by incorporating sevenths. All a seventh chord is in actuality is a basic triad (either a major, minor or diminished) with one note in the triad replaced by another note one semitone above it, altering its sound in subtle ways.

Tweaker

Okay, so these fundamentals of structure are straightforward, but when we look at this pattern applied to different keys other than C we hit a snag...

A major scale's interval pattern is crucial to comprehend. However in other keys the semitone

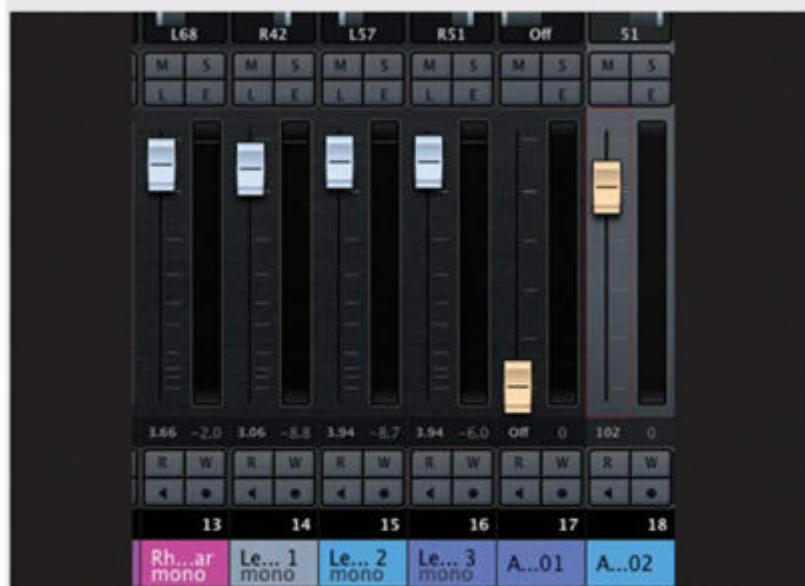
MT Step-by-step Harmonising musical elements



01 Firstly, make sure you're aware of the root note of the central melody or hook. In this song, there's a lead guitar part playing a solo, quite high up the guitar fretboard, and another track recorded later of the same part played several octaves lower. We haven't recorded any backing rhythm guitar or piano however.



02 So I've added some additional elements using the Absynth plug-in. This synth pad underbed gives the otherwise quite dry (double tracked) solo a nice comfortable musical bedrock with all the chords the solo moves through (in this case the key is F#) being played as the solo progresses.



03 In the mix we can merge these elements better by panning and, in this case, fusing the harmonic, ethereal sounding synth underbed with the deeper guitar track. This is all down to personal preference – however, in this case the harmonic quality of the juxtaposition of ethereal chord backing and fuzzy guitar soloing lifts an otherwise pretty humdrum composition into something that sounds more interesting to the ear.

→ difference would be off if we apply exactly the same framework, so we have to adjust to make sure that each major scale has an interval pattern beginning with two tones, one semitone, and then three tones. We may have to sharpen or flatten our notes as we go just so everything fits.

If tweaked correctly then you should never find yourself with a key consisting of both flats and sharps. Once you've tweaked accordingly it shouldn't be hard at all to work out all the chords in any scale, so long as you adhere to the above pattern.

What I've just described is the technical aspects of the chords in each key. Obviously, using them is a different matter: saying that there are 'correct' combinations of chords in this scale isn't really an appropriate term in the vastly expansive and diverse world of songwriting. However there are combinations that seem to work extremely well, and they're frequently used in a great deal of popular music.

The first, fourth and fifth chords are important, as they consist of the only other majors available. Indeed, probably the vast majority of music in the western world has been built using these simple, obvious harmonic progressions, but using all the chords in the scale in a variety of combinations, speeds, patterns – well that's the art of songwriting and something that only practice, time and dedication to your craft will enable you to naturally develop!

Major correction

There aren't a limitless number of harmonically pleasing chord sequences available, so don't hesitate to use chord sequences you like that have been written for other people's songs, as long as the rest of the musical information making up the song is sufficiently different (in particular the top-line melody). This can be a very useful strategy for those unsure about creating or combining their own chord sequences from scratch.

Listen out for the chord sequences in some of your favourite songs. Do they conform to a standard key's scale, or do they incorporate chords from other key structures? Mastering chords to this degree is a fine art, and you're bound to have more misses than successes when going out of your chosen key. But bearing this in mind when songwriting gives you some expansive room for experimentation regardless of the genre of music you're composing. **MT**



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Action scoring with drums

Cinematic percussion often forms the driving force to the music that supports an action scene. **Mark Cousins** creates an epic drum score...

Having explored the mechanics of writing music to picture, we thought it was about time we explored the process from a more creative standpoint. In this workshop we're going to take a look at scoring an action sequence, with particular reference to use of drums and percussion. Broadly speaking, the sound that we're exploring is termed as 'cinematic percussion' – built from a battery of percussion sources: like Taikos, Concert Toms and Orchestral Bass Drums. This powerful cinematic

Broadly speaking, the sound that we're exploring is termed as 'cinematic percussion'

percussion sound tends to dominate trailer soundtracks and the work of modern composers such as Hans Zimmer.

Layer cake

One of the key characteristics of cinematic percussion is the blend of three instrument layers, each forming a distinct part of the frequency spectrum. The first layer is that of high-end percussion – like shakers, bamboo sticks, hi-hats and so-called 'ticky' sounds – that really help define the movement of the cue. Even if the cue becomes particularly stripped-down, it's often the high-end percussion that carries through the duration of the track. Equally, it might be that the cue starts in a subtle way, initially just working with the high-end percussion, with the more powerful layers added as the action picks up.

Moving up through the frequency spectrum we hit the mid-range percussion. As a rule, the mid-range percussion isn't quite as frenetic as the high-end percussion, although



there's still a distinct sense of movement, but with less need to fill every 16th division. Traditionally speaking, the principle sound choice here is Concert Toms, but there's also plenty to explore using a variety of ethnic drums (ideally without too much low-end), snare drums and mid-sized Taikos or Daikos. Ultimately, the aim of the mid range is provide power and drive to the pattern, often entering as the action steps up a gear.

Going deep

The final part of the spectrum covers the low-end, using deeper Taikos, Orchestral Bass Drums and so on. Given the depth of the sound, it's important the pattern isn't too frenetic, otherwise the bottom-end of the mix will just become cluttered. Having created movement with the high-end, alongside power and energy with the mid-range, the low-end is all about creating an epic 'scale' to the result, arguably forming the final, crucial piece of the cinematic sound. The deeper Taiko, the grander its scale, and the more cinematic your cue becomes!

To unite the three different bands of percussion, we'll find a consistent accent pattern across each instrument group. This clear use of accenting helps define the feel, contrasting between a sequence that places the accents distinctly 'on the beat', against an alternative pattern that makes a distinctive use of syncopation



POWER PERCUSSION

Over-compressing your percussion tracks can have a negative effect on their transient energy, which is important in respect to how the drums cut through the mix. As an alternative, consider the use of parallel compression, which can add body and energy to your percussion track without sacrificing the transients. Use an aux send to route a proportion of your chosen sound/s through to a compressor instantiated across a bus. Set up the compressor to apply compression in a heavy-handed way (fast attack, medium release, 6:1 ratio), which you can bleed back into the mix to create the desired amount of body.

MT Step-by-Step Action scoring with drums

01 Working on the principle of a three-part instrument grouping – low, mid and high – we're going to start with the fast-moving high-end percussion. For the sound source, we're using one of the Tikitaka Hybrid sounds from Native Instruments' Action Strikes.



03 To give the sequence more interest, we've created a second duplicate track, assigned to a different high-end percussion source. You can keep the pattern largely the same, or alter it slightly, although you still want to preserve the 16th movement.



05 Let's move up the frequency spectrum and take a look at the mid-range percussion. The sound source here is Bombos, from Spitfire Audio's Hans Zimmer Percussion. Balance the different mic sets (C, R and S) to create a sound with plenty of ambience.

using off-beat accents. Varying the accents throughout the cue can also be good way to develop your music, maybe moving from a simple on-the-beat feel to a more syncopated alternative to reflect a change in the picture.

Production tricks

The use of a variety of different production effects can help define the three percussion bands. With the use of stereo, for example, imagine your mix fanning out – staying centre-focused in the low-end, widening in the mid-range,



02 The high-end percussion should form the fastest movement – in this case, creating a 16th movement. You need to define where the accents fall so that the pattern has a rhythmic shape. In this case, we've accented groups of three, and then the last two quavers.



04 It's well worth creating some stereo dimensionality to the high-end percussion. Start by panning both parts off-centre to create some width. We've also added a stereo delay effect using two mono delays, set to different timings and panned hard left and right.



06 For the musical sequence you should create a pattern with slightly less movement than the high-end percussion part, carrying through the same accent pattern. We've also added some interest at the end with a short flam into the next bar.

and then using the extremes of left and right as you move up to the high-end percussion. Instrument doubling (using two types of shaker, for example, or a combination of Djembes and Toms) can help define this. If you decide to double instruments, consider small amounts of randomisation or delay offsets in your MIDI data so that it sounds like multiple players rather than a duplicate MIDI part.

The use of reverb and compression can also help define the various layers of percussion. Directing more compression towards the mid-range elements can real help →

→ drive the cue forward, whereas a light-handed approach on the high-end preserves important transient details. With reverb, use shorter settings for the faster moving elements, while the slower moving low-end can really benefit from a 'back of the hall' reverb setting to add a real sense of scale.

Coming soon

Following on from this exploration of cinematic percussion, we'll take a look at how synths can integrate with this

sound palette, adding further interest and energy into the mix. In many ways, it's this dynamic combination of epic percussion, synth sounds and a splash of orchestra that defines modern cinema, and it's a combination that we'll be exploring in much more detail over the coming months. **MT**

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MT Step-by-Step Action scoring with drums ... cont'd



07 Doubling the part up on Toms helps add scale to the sequence. However, to get the feel of a 'drum ensemble' we've applied some soft humanisation – randomising note position, velocity and length to create subtle variation between the parts.



08 The mid-range percussion carries a lot of power and energy in the sequence, so it's worth enhancing this with the application of compression. We've used a compressor with plenty of character and grit, working on a 4:1 ratio.



09 The bottom-end of your drum track should be pinned-down with instruments like Taikos (like this example from SD3), or big orchestral bass drums. Keep the pattern simple, though, only playing on or around the accents you defined with the high-end percussion.



10 Doubling the low-end percussion can get messy, but you might want to experiment with compression (in this case, Fairchild compression) as well as scale-enhancing effects such as Sonnox's Oxford Inflator. Try to preserve transient detail, but enhance the power.



11 Differentiate the use of reverb between the different layers. The low-end percussion really benefits from a big, spacious reverb setting. As you move up to the mids, though, use a shorter setting so that the reverb doesn't interfere with the power of the pattern.



12 Having created the basic pattern, the next step is to contour it throughout the duration of the cue, matching the action on screen. Bring the layers in and out accordingly, add dynamic stops and also consider moving between 4/4 and 12/8 pulse.

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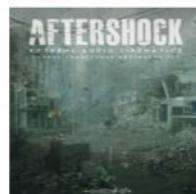


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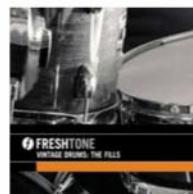
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Ableton Live | The Ultimate Guide to Ableton Live Part 3

Processing your beats

In Part 2 of the Ultimate Live Guide we built a nice, clean MIDI beat with a few realistic variations, but now **Martin Delaney** explains how to dirty it up!

In our last tutorial, we began a new Live project and created a beat using one of Live's more acoustic, natural-sounding kits. All good but now we're going to cannibalise that beat in two different ways - we'll duplicate and process it to create a new tuned percussion part that plays over the top, and we'll also convert that original beat to audio, before slicing it up for yet more processing, removing some of the slices



There's no right or wrong with the beats you use as long as they are right for the project

completely and replacing them with totally different sounds.

There's no right or wrong about the type of drum sounds you use; what matters is they're right for the project you're working on at the time. Truthfully in most genres these days, you'll be working with many drum tracks playing in parallel, combining acoustic and electronic sounds. Dance music tracks are typically based on core drum kits derived from the classic drum machines of old, the Roland TR-808 and TR-909, but these sounds will be customised, processed with audio effects, and often layered alongside more realistic percussion sounds for a richer texture. As well as mixing and matching source kits, there's a lot of leeway with sample resolution and sound quality; you can build a kit that includes nice high resolution drum hits alongside grungy little samples that you've grabbed from an MP3, YouTube, or you've resampled from a little dictating recorder. Mix and match - that's what it's all about.

During the tutorial we talk about freezing and flattening tracks - this retains each separate clip within

FOCUS ON... QUANTIZATION

Sometimes Live treats audio and MIDI in similar ways. An example of this is quantization. We discussed this for MIDI already, but we can also do it with audio samples - a very powerful feature. Try the sample in our example Live set, Loose Beat. Double-click the clip to see the waveform - you'll see it's not exactly in time and we can fix this. Right-click inside the waveform and type Cmd-U. You'll see the peaks in the waveform snap to the grid. Cool! To change the quantization values, use Shift-Cmd-U to access the quantization settings.

the track, which is incredibly useful. Just be aware that Flatten is destructive - your original track is gone! What I usually do is duplicate the track, then create a group track called 'Spare' which I use to contain all of the original versions of my frozen tracks.

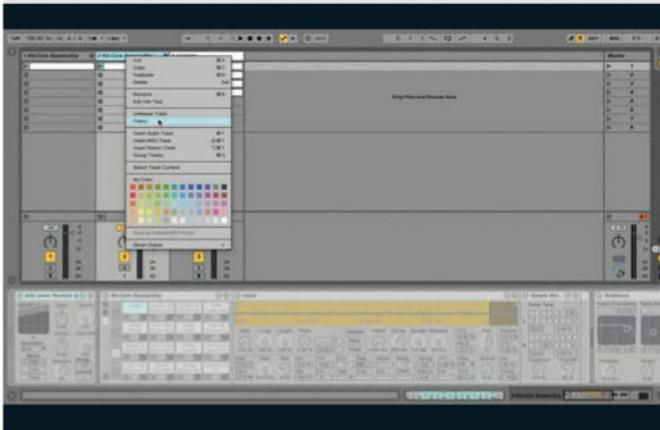
You'll notice that every clip in a flattened track is double the length of the original source clip - this is a feature not a bug(!), designed to accommodate effect tails at the end of loops - this makes sense because it's quite annoying to hear a reverb tail cut off and begin again as a sample loops. If you're obsessive about house-cleaning, which I am, you can use the crop sample command to put your clip back to its original length.

We added the Resonator effect to our new percussion track. I love the Resonator, it has quite a distinctive sound, although that means that sometimes you have to tweak it somewhat to get something different. It's very important to use that Note control though, and make sure it's pitched correctly to fit in with your other parts - things can get a bit discordant otherwise.

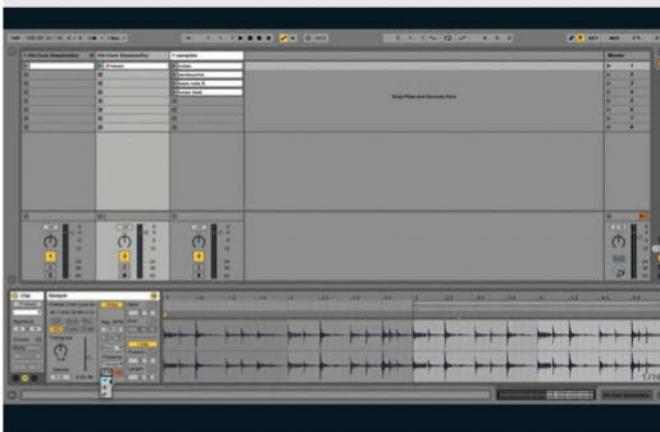
Having programmed and customised a beat earlier, we're now converting it to audio and beginning the process all over again, slicing it up and adding different sounds and effects. We're doing this because I want to show you the very cool 'Slice to New MIDI Track' command, and also because it's another interesting creative step you can take. Even when you're working with something you've programmed yourself, you can give it more of a 'sampled' vibe by converting it to audio and slicing it up. It makes you use different tools in different ways. 'Slice to New MIDI'



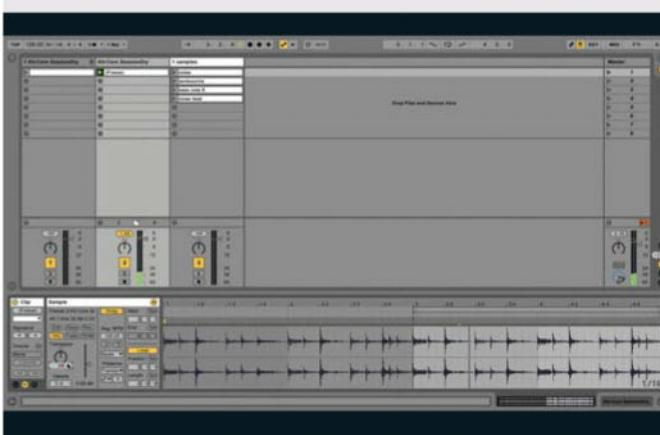
MT Step-by-Step Processing your beats



01 Open our example set - TUGTAL3. Select the drum track and type Cmd-D to duplicate. Right-click the new track, choose Freeze Track, then right-click again and choose Flatten, creating an audio version of the track.

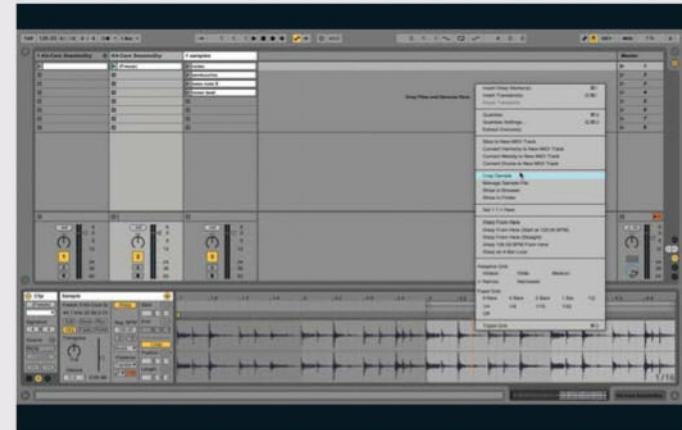


03 Set the new drum audio clip to Beats Warp mode if it isn't already, then go down to the bottom of the Warp controls and choose the top arrow icon, pointing to the right only.

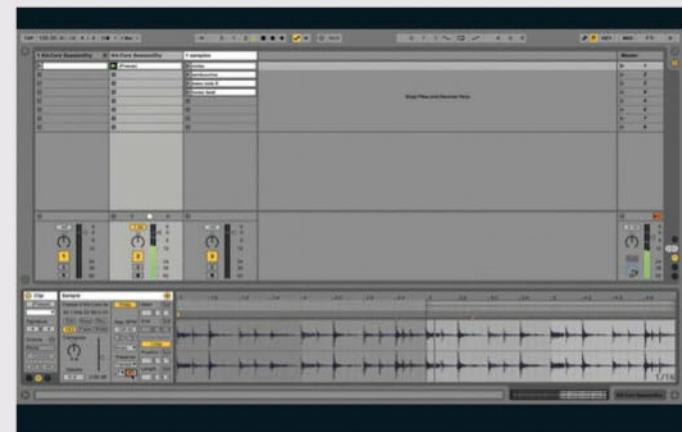


05 It sounds cool, yes? It's gating the waveform's transients. Drag right down to 0 for a delicious clicky part, then use the Transpose knob at the left to raise it by 24 semitones or two octaves.

'Track' is great if you have a beat from another record, and you want to edit the arrangement, or tweak or even replace some of the sounds in the sample; putting a compressor on the kick in a sample loop is a good example. I also like to use lo-fi effects such as Redux, Erosion, and Cabinet to dirty things up a bit. The correct technical term for the



02 Freeze and Flatten makes double-length audio clips – this helps handle effect tails and the like. Use the Loop Brace, Start Marker, and Crop Sample command to cut the clip back to the original length.



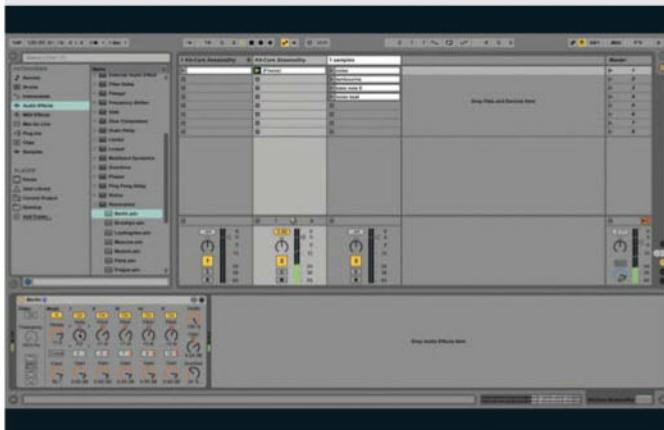
04 This deactivates the Transient Loop mode, which determines how the gaps between slices in Beats mode are handled. While the loop's running, click and drag downwards in the adjoining box to reduce the decay between slices.



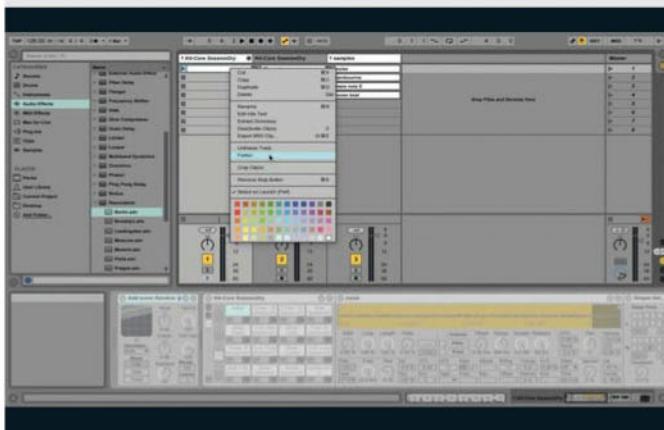
06 Go to the Audio Effects category in the Browser and add the Resonator preset called Berlin to the track. Set the Note inside Resonator to E2, then try setting the Dry/Wet mix at 35%.

slices made by this command, as they're created and placed in a rack, is 'chains'. Dragging samples or instruments to replace slices is a big thing; you can take a loop from an old record and totally replace the kick or snare with another sample. Or as we touched on here, drag in an instrument. The slice will be replaced, and the →

MT Step-by-Step Processing your beats... cont'd



07 Now you've created a melodic percussion part by tweaking your original beat. Live is great for recycling your audio and MIDI parts! It is definitely possible to make an entire tune from one source sample.



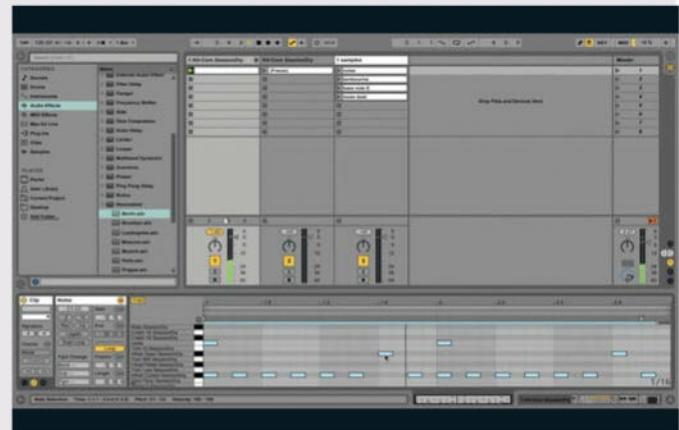
09 Right-click the track containing that original beat and choose Freeze Track. Right-click again and choose Flatten. The MIDI track's disappeared! Freeze/Flatten is destructive – that's why we copied the track when we did it before.



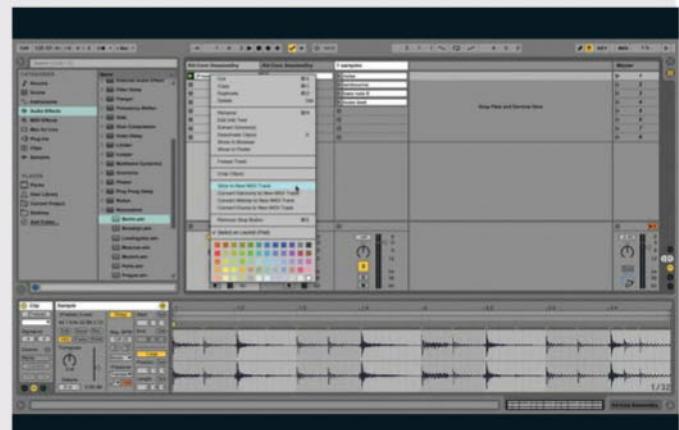
11 Choose the 1/8 Slicing option from the new window. Now you have a new MIDI track and clip. Perverse, isn't it? Launch the clip – it should sound pretty much the same as the original.

→ instrument will play as the clip loops. You can build really interesting loops by adding soft synths, audio effects... really taking it on to another level.

If you're ever following a drum rack tutorial and you're not seeing everything, make sure to click on the black buttons at the bottom left of the rack – these will show



08 Uh, maybe we're getting bored with the original beat now – it sounds quite flat against the Resonator percussion track. Let's put it through the wringer taking it on a gratuitous journey of sonic dismemberment.



10 This is just a fun way to mess with your parts as we want a different vibe. Crop the new clip down to only two bars. Right-click on it and choose Slice To New MIDI Track.



12 This operation has sliced the audio clip, and made a new drum rack, with a different instance of Simpler for each slice. It's also automatically created a MIDI clip, with a note for each slice.

and hide the various elements that make up the rack, including input/output routing, effect sends and returns (yes you can have these in a drum rack), and of course the macros, chains, and devices.

If you really want to go big with elaborate evolving beats, you can start using automation as well. This is a real →



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MT Step-by-Step Processing your beats... cont'd



13 Audition the slices from your MIDI controller, or from your computer keyboard (Shift-Cmd-K to activate that), or enable Preview for the clip (the headphone icon) and click on each note to hear it.



14 Effectively we've sampled ourselves. Experiment with dragging the notes around the editor grid, to see what happens; you can take any beat and reorganise it to fit your song, this is one of Live's top features!



15 Not only can we reorganise the notes, we can tweak each slice. Give the kick a little bump by dragging the Compressor preset Brick Wall onto slices 1, 5, 9 and 13 in the clip.



16 Now we turn our attention to the snare. Drag the Ping Pong Delay onto slice 3, the first snare in the clip. Wow! That's too much. Dial the Dry/Wet control down to 30%.



17 Delays are a great way to change the rhythm of your beats. Onwards. We have another sample, called 'bass note E'. Drag it onto slice 7. It automatically creates a Simpler instrument to contain it!



18 Doing that automatically replaces the original slice – now you have a bass note hitting alongside the beat. Click on the track name, type Cmd-R, and rename the track 'Sliced beat'. That's it for now.

→ opportunity to go nuts, because you can automate every device in every chain in the rack, and that can be hundreds of parameters. And of course you can separate the length of the automation loop from the clip length (with the Link button), and do that individually for each parameter, so warn your friends and family that you're going to disappear

for a few weeks!

That's all we have room for now and we haven't even mentioned the totally awesome 'Convert Audio to Drums' command. That will have to wait for another tutorial. Next month we will use the Simpler instrument and MIDI Effect devices to add some bass to our beats.. MT



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20 MIDI programming Tips

Stuck in a programming rut? **Hollin Jones** explains how, with a little know-how, you can use MIDI to revolutionise your setup...

01 EXPLORE YOUR OPTIONS

There are now more ways than ever to input MIDI into your software. The conventional keyboard is still the most common, but there are many pad controllers, MIDI drums and advanced tools such as NI's Komplete Kontrol keyboards with special MIDI modes to help you do more. Even if you're just using a simple MIDI keyboard, MIDI insert effects inside your DAW can help to process simple input into something much more complex such as chorded or arpeggiated parts and also post-process existing MIDI parts just like you would with audio tracks. While MIDI and audio are fundamentally different you can still do things like 'compressing' MIDI by artificially controlling note velocities, creating automatic harmonies and so on. MIDI plug-ins use virtually no power in themselves and can be rendered down as 'real' MIDI parts or the results can be bounced to audio very easily.

Ultrabeat (right) is a great way of producing self-contained patterns.

MIDI insert effects help turn 'simple' into 'complex' (below)



02 USE ALTERNATIVE SEQUENCERS

Some DAWs let you sequence not only regular MIDI parts but also blocks of pattern data. These are used to tell a specific module to change from playing one beat, sequence or loop to another. Pattern sequencing can be quicker than duplicating MIDI clips or notes to achieve this result, and makes for more flexible arrangements. Typically, pattern clips can be converted to regular MIDI clips if required. Sometimes the pattern sequencing will be part of an instrument as in the case of Reason's ReDrum and other times it will be part of the DAW itself as with FL Studio's mini sequencers on MIDI tracks, or SONAR's step sequencer section. Others such as Cubase have sequencers as MIDI insert effects and Logic's Ultrabeat has its own sequencer too. It's a nice, self-contained way of building patterns independently of the main project sequencer.

**03 EXPLODE AND COMBINE PARTS**

There's sometimes an option in a DAW to select a clip and then choose to either explode it out so that its constituent notes are split off to new clips or lanes, or to consolidate a number of existing notes or parts together into one clip. The former is good for reassigning parts of clips to play new instruments, and the latter for bringing together a number of parts to be played by one instrument. Let's say you've programmed a beat but decide you want the snare played by a different virtual beatbox. Split off the snare notes to a new lane or clip to achieve this. Or you've recorded in a number of lanes and quantized each one slightly differently but want them all in a single clip for export or for arrangement purposes. Here you would consolidate multiple parts together, sometimes also referred to as 'merging' MIDI parts.

04 IT'S NOT JUST ABOUT NOTES

It's sometimes a good idea to use MIDI clips that don't contain note data but do contain controller data, especially in DAWs such as Live. These might control parameters in other tracks or modules, or be linked to external MIDI gear. In fact, this is how MIDI sequencers started life: triggering external kit. As well as note data, you can send program changes, parameter modulation and many other commands either internally or externally. Drag them around a project freely to change parameters at different points. It's a bit like automation and has a similar end result; it's just that your MIDI clip might contain one of the 128 MIDI CCs (control change messages) instead of notes. These can be used to switch polyphony modes, change banks and all sorts of other MIDI commands, all recorded inside a project.

**05 CREATE BIGGER SOUNDS EASILY**

One of the quickest ways to create a more layered and fuller sound is to double up selected MIDI parts. Since you can have pretty much an unlimited number of MIDI tracks in most DAWs this is easy to do. Let's say you have a beat playing through a drum instrument. Create a second instance of that beatbox on a different track, or load up a different instrument. Then duplicate the MIDI part on to the new track and voila: the same beat is playing using two sounds. Of course this won't always sound great immediately – you might need to thin out the duplicated part, removing the kick drum for example, so that it doesn't overload the sound. And two snares sounding at once might not work if they're too similar, but you should tweak the sounds until they sit together correctly.

One of the quickest ways to create a more layered sound is to double up MIDI parts



Exploding a part into lanes adds real sonic flexibility (top left).

Automation (above right) can be a very powerful tool.

Use controller data to link to external gear (as below).

06 AUTOMATE YOUR MIDI

Virtual instruments and effects can be automated, and this is a very powerful tool to have in your arsenal. Use automation to change settings, switch plug-ins on and off, change patches and presets, vary effect levels and all manner of other things over time. Automation can often be unlinked from MIDI clips so that it can be moved around the sequencer, copied, pasted or deleted independently of the clip with which it was originally associated. It can also sometimes be saved as MIDI files where only CC data has been used. Instruments that support sound morphing and have X/Y controls are particularly good to use with automation since you can precisely control the way sounds change over time. The same goes for effects: modify MIDI effects just like you would audio ones. Some DAWs have advanced automation features that are suited to control by a MIDI control surface.

07 USE VIRTUAL MIDI

An increasing number of iOS apps allow virtual MIDI, which lets you send MIDI signals invisibly between apps on the same iPad or iPhone. So you can trigger a standalone iOS synth from your iOS DAW and record the results internally as long as both apps support the protocol. Some even accept MIDI input over USB from your computer for triggering sounds from the desktop.

→ 08 SAVE TIME WHEN EDITING

If you select one or more MIDI notes in a clip, it's possible to drag them left or right to alter all their lengths by the same relative amount. So shorter and longer notes will remain different, but proportionately their relationship will be the same. You can apply other functions to them while they're selected, including making all selected notes a specific length or deleting any overlaps in mono or polyphonic mode.

09 GET SCIENTIFIC WITH MIDI FUNCTIONS

Some higher end DAWs have MIDI function tools. These are not the same as plug-ins that process MIDI in real time – instead they can be used to batch process MIDI data based on set criteria. So, for example, you could use such a tool to remove all the sharp or flat notes within a MIDI part, delete or replace all instances of a specific note, or extract all velocity data to a new part. Cubase is one of the most accomplished DAWs when it comes to this, and it has a dedicated Logical Editor which is particularly powerful. This isn't like simply sticking an arpeggiator on a MIDI track – it's more scientific and analyses all the information within a part in order to perform the function you assign. A practical example might be to change a bunch of MIDI clips from a minor to major key, or batch change the velocity of all the kick drum parts across a drum track.



MIDI is **insanely flexible** and can be sent **literally anywhere** from your DAW

10 BOUNCE MIDI DOWN

Sometimes you want to use audio processing functions like audio reverse or mashup on a sound that is currently being generated using MIDI. It's easy to achieve this by exporting the loop or part to your hard drive as an audio file, then re-importing it to an audio track and applying the plug-in. If your DAW has the option, try bouncing the MIDI to audio internally.



11 GROOVE QUANTIZE FOR A BETTER FEEL

Most DAWs have realtime MIDI quantization systems that you can use. In Reason's case it's called ReGroove and it's essentially the same as using a MIDI insert effect, except that it's more flexible. Reveal the ReGroove mixer and you can route any sequencer track or note lane through any of its 32 slots, each of which can use a separate setting. Or, route several parts through a single slot to match settings. It's an easy way to add humanisation to parts, and the groove remains virtual until you commit it to a sequencer track. In other DAWs you can use the regular quantize menu to extract groove from existing MIDI or audio clips and apply it to others, changing it as you go if you like. This is the trick to getting MIDI parts to sound more like they have been played by a real person.

12 THINK OUTSIDE THE BOX

MIDI is insanely flexible and can be sent literally anywhere from your DAW, so it's not always necessary to only use virtual instruments. Modern software sequencers are capable of some amazing programming tricks, but MIDI is a standardised protocol and, as such, is based on rules that all MIDI instruments, software or hardware, have to adhere to. What this means in practice is that your vintage hardware drum machine or old keyboard workstation can be hooked up to a MIDI track from the latest version of Logic, Live or whatever you're using. Connect the audio outputs of the hardware to your mixer or your audio interface to route it back in for recording and you can easily integrate hardware into your setup. Most software now allows for delay compensation to deal with the small lag in signal that can sometimes occur if you do this.

13 TAKE ADVANTAGE OF ARPEGGIATORS

Arpeggiators are a brilliant way to program MIDI and many virtual instruments have one built in. If not you can often find free or inexpensive arpeggiators as MIDI plug-ins, and many DAWs have one available as part of the MIDI track or as an insert effect. They will sync to a project's tempo by default and make it easy to create patterns, beats and basslines with a few clicks of the mouse that sound great. Arpeggiators are a much quicker way to generate complex MIDI parts than playing by hand or drawing data in with the mouse, and generally have multiple pattern banks so that you can store several patterns and automate them to flip at different points in a song. You can convert the arp data to notes if you want to export it. Advanced hardware controllers like NI's Komplete Kontrol have specialised arpeggiation tools of their own that make it easy to play very complex parts with just a couple of fingers.

MIDI function tools can get into the specifics of a MIDI part (above)...

... or go for a bit of ReGroove for even more flexibility (top).

14 SPEED UP, SLOW DOWN

MIDI is especially well suited to tempo changes mid-project, so if you're planning to use speed changes in a song, try to use MIDI-triggered sounds rather than audio. Although audio is increasingly able to be manipulated in this way you can get a much wider range of speed changes if you stick to MIDI parts.



Although audio is able to be manipulated, you can get a much wider range of speed changes if you stick to MIDI parts

15 KNOW THE SCORE

DAWs increasingly support scoring so you can convert MIDI parts to score data with a couple of clicks. Even if you don't read music, you can create parts for those who do to read. This can then be printed, and you don't need a specialised, separate program to do it. You don't even need to be able to read manuscript yourself.

16 OVERDUB AND LOOP

You can set your system to record MIDI in a loop, and then either blend the newest parts with the already recorded ones or create a separate take for every pass that's made. Maintaining different parts in lanes on a single MIDI track gives you more flexibility to experiment and edit, muting and soloing different clips. You generally also have the option to combine the lanes into a single part if you wish.

17 DON'T PANIC!

Software and hardware often have a Reset or Panic mode, which sends an 'all notes and all parameters off' command to any connected MIDI devices, be they hardware or software. This is very handy to know about when you've stopped playback but a note has stuck on. Rather than quitting the software, try to find the panic or reset command.

**18 RANDOMISE PARTS**

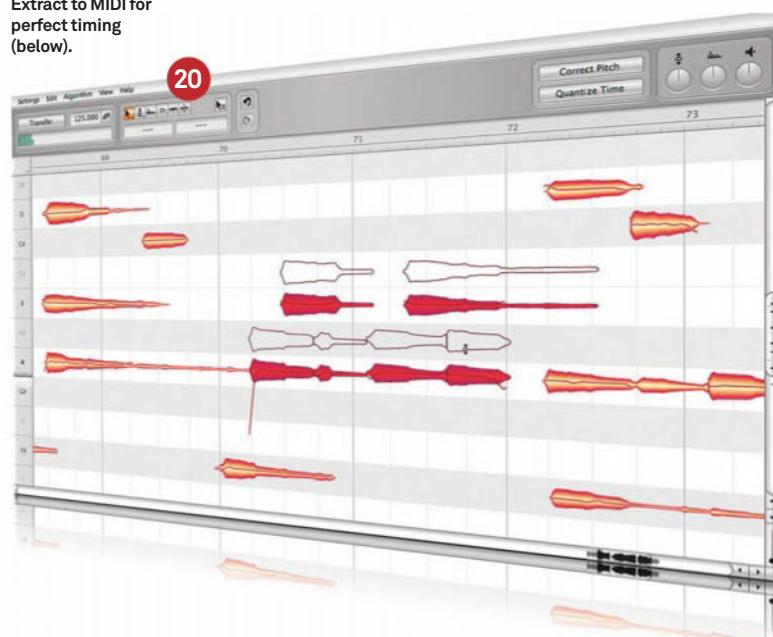
MIDI clips in a sequencer exist independently of each other, so you can easily create variations in some but not others by editing them. Alternatively, use randomisation or MIDI processing functions to alter parts in ways you may not have thought of. Label or colour the changed clips to make it easy to keep track of what you've altered.

19 QUANTIZE WHILE RECORDING

Many DAWs have an option you can activate that quantizes MIDI parts based on your specified settings as you play. This can be good if you're not a confident player, or simply want to save time quantizing afterwards. Even if you over-quantize you should be able to bring back a more human feel using groove quantizing post-recording.

20 EXTRACT PITCH TO MIDI

Software such as Melodyne enables the extracting of audio pitch and micropitch to MIDI and this is also available in some DAWs such as recent versions of Cubase. A practical use of this is to quickly extract the timing and notes of a vocal part to MIDI and apply it to an instrument so it ghosts the vocal part precisely, resulting in a bigger sound. **MT**



MT Workshop Beat Programming and Sound Design, Part 6

Designing perfect dubstep bass

Designing your own dubstep basses can be fun and it's easier than you might have thought. **Hollin Jones** reveals how it's done...

With modern genres of music splintering and morphing into countless sub-genres faster than at any time in history, it's quite rare to encounter a completely new take on an electronic style. And although it's been around for a while at this point, dubstep genuinely represented a different direction for EDM, actually slowing the tempo down rather than speeding it up for once. And nowhere was the individuality of dubstep more evident than in the bass: this was bass as a lead instrument: a pulsating, terrifying sound that was at the same time thunderously deep and searingly high pitched.

This was made possible by the fact that dubstep bass is synthesized. You can make it do things that just aren't possible with a bass guitar, at least not without running it through a vast array of pedals. And while there are some great dedicated dubstep bass synths around, the principle behind the sound itself is less complicated than you might think. In fact it can be replicated with most software synths as long as they have a few basic parameters and sections. So it can be done in Reason's Subtractor or Thor, Logic's ES2, NI's Massive and many more. And the arsenal of processing tools available to you in your DAW mean that adding effects to bring the sound to life is easy too.

Sound effects

You might ask why you'd want to design your own dubstep bass sounds. Well, of course you're free to load up and tweak any presets that may have come with your synth, but getting down to the bones of what makes up the sound has several benefits.

For a start you'll learn about synthesis and the relationship between the various sections, how sound is generated and how modulators can affect the signal. You'll also be able to apply the same theory, not just to dubstep basses but to any synth sound you like. As a very simple example you might pitch up the oscillators a few

On the disc



Accompanying project file included on the DVD

octaves and get a screaming lead patch with the same pulsating character. Or apply the same kind of LFO modulation to an audio effect that you would use on the synth bass, perhaps to create a special vocal effect.

Getting started

At the heart of any bass sound is at least one oscillator which will have its octave setting turned down low. You might also want to use a second oscillator set at an octave or two above the lower one, depending on how you like your sounds. Although it's possible to set both oscillators to any key and tuning you like, it makes sense to stick to some kind of a plan since mismatched tunings can sound pretty awful. Of course you might want to use one tuned a fifth or an octave plus a fifth above the other, which will still sound 'in tune' but give a very specific effect that will make the bass more a kind of lead sound because it won't be fulfilling the traditional role of the bass sound. You can also mix and match waveforms to give the sound a different character. Sine waves for example sound big and round, whereas saw waves have a more buzzy quality to them so you can blend any waves you like to create unique sounds.

How you then process your bass sound will depend on your aims and your software but the key to getting that classic 'wobble' effect is to apply a cutoff filter, set it to the desired point and then assign an LFO to modulate its opening and



AUTOMATIC VS MANUAL

Automating LFO rates and speeds is key to getting that 'quick change' dubstep bass effect. This is easy in the vast majority of DAWs and involves either changing the LFO rate or speed parameter in realtime while the track is set to automation record mode (most do this automatically), or opening up an automation subtrack and actually manually entering automation data with the pen tool. Both are good methods: entering it manually is more precise, while playing it in live by hand can produce some pleasing and unexpected results for a more live feel. You can always play it by hand and then go in and make edits afterwards which is the best of both worlds.

Requirements

Our Beat Programming and Sound Design feature is illustrated using Reason but you can apply the principles to whatever DAW you use.

MT Step-by-Step Programming a dubstep bass



01 Start by loading up a synth. Here we're using the Thor synth because it has exactly the controls we need to create a dubstep bass. Go to the Edit menu and choose Reset Device, which clears out all its settings.



03 At the moment it'll sound pretty lifeless but don't worry. Go to the second Osc section and select another wave – here it's a Multi Osc. You'll also need to turn on the To Filter button and activate the sync osc 1 to 2 button.



05 Now add a second filter using the lower filter slot. Again this can be whatever you like but here it's a Comb Filter. We have also set Filter 2 to send its signal on to the Amplifier section which boosts the sound a lot.

closing. You can finetune the behaviour and speed of the LFO and also usually the minimum and maximum values of the filter, and in doing so create a wobble effect that works for you. LFOs almost always have the ability to sync to project tempo – indeed most do this by default – so you don't have to worry about staying in sync.

By altering the resolution of the LFO you can change the speed and feel of the wobble effect on your



02 Now go to the oscillator section by expanding the Programmer and locate the OSC 1 section. There are multiple waveforms available so try a few to see what sounds good. Here we've gone for an Analog Osc with a square wave.



04 Go to the first filter section and switch to a State Variable filter then choose a LP filter type. You can try other filter types as several will work. Turn the filter frequency and resolution knobs until you get a nice fat sound.



06 At this point you can start to add some modulation before you get too much further into the sound character. Go to the Mod Matrix at the base of Thor and in the Source column, choose LFO 1 and in the Destination column, Filt1 Frequency.

composition. Automating LFO speed is how dubstep producers quickly change the wobble effect from one speed to another, sometimes extremely frequently from bar to bar.

This is best achieved by automating the LFO settings in your DAW since it can be fiddly to do by hand. In fact it's often quicker to simply draw it straight into an automation lane rather than trying to do it by hand as it's →

MT Step-by-Step Programming a dubstep bass... cont'd



07 To hear anything you'll need to dial in an amount in this row so that LFO gets applied to the filter frequency. Whack this up to 100 and press a note and you'll hear some wobble effect.



08 You should now have a modulating bass sound with a couple of elements to it – one high and one low. You can alter the filter controls and the oscillator octave and wave settings to customise the sound at any point.



09 To alter the character of the wobble you need to go to the LFO sections. Start with section 1 and choose a waveform and a rate setting to alter the speed and intensity of the wobble. Moving these controls should make pretty clear changes.



10 Repeat the same trick with LFO2, remembering that you can go back to the Mod Matrix and alter both the amount of LFO being applied and its target. For example, try assigning LFO1 to any number of other parameters to create a more dynamic patch.



11 Since this sound has plenty of top end it's safe to add some tempo synced delay, though it's sensible to keep the dry/wet level quite low so it only really hits the top end of the signal and doesn't swamp the mix.



12 For even more flexibility, assign one or more of the rotary controls on Thor's front panel to control the LFO rates. This will give you a nice hands-on way to quickly blast through wobble speeds, which is perfect for live performance.

→ much more accurate. Some DAWs even let you copy and paste automation data or move it about independently of note clips, so it can be simple to apply one lot of automation data to another clip or track without having to recreate it all again by hand.

After you have your sound you'll want to apply some effects, and it's usually distortion that really does the job here – plus of course some compression. Delay too,

provided that there's a decent mid range or top end to the sound you're working with. Applying delay to very low end sounds usually just creates a kind of confusing mud and sounds a bit weird – but there's nothing to stop you if that sounds up your street. If you're feeling really creative you could even duplicate the part and then EQ or filter out the top end on one copy, and the bottom end on the other copy, and apply delay just to the higher part. **MT**



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MT Workshop Cutting-edge Production Techniques

Requirements

Our Cutting-edge Production workshops are illustrated using Pro Tools, but you can apply the principles to whatever DAW you use.

Serial compression

Serial compression involves the use of two or more compressors placed in a single signal chain one after the other. **Mike Hillier** goes with the flow...

Parallel compression is a technique you're all most likely very familiar with by now: blending compressed and un-processed signals together to create a dynamic, yet still energetic signal. This once fairly unknown technique is now so commonplace that many compressors have a wet/dry knob built-in so you don't even have to go to the effort of duplicating the signal yourself.

Serial compression, unlike parallel compression, doesn't require using any duplicate tracks or clever routing, but is simply the process of feeding the output of one compressor into the input of another. While this may seem like a fairly obvious technique, it's one that isn't used particularly often outside of mastering, but when it is, it can be incredibly useful at making a track sound big and upfront.

There are two main reasons to use serial compression over simply using one compressor. The first is that by splitting gain reduction across two or more processors, no one processor is having to work too hard, and so the end result may well be cleaner. The other is that it enables you to deal with different aspects of the sound with different compressors. One compressor can be configured with a fast attack and fast release, and with a high threshold so only fast transients are caught and brought down, while the other can have a slower attack and release with a lower threshold intended to bring out the sustain in the signal, and to smoothly bring a uniformity to the signal level.

Choosing the order of the compressors will subtly change the resulting sound, and by placing the faster processor first you can remove transients before they hit the slower processor – thus preventing them from triggering the slower compressor which could cause pumping. An additional advantage of using two or more different

The **FET-based 1176** and the valve and **opto-cell based LA-2A** compliment each other **superbly**

compressors is that you can colour your signal in two or more different ways.

One of our favourite uses for this technique is on lead vocals, where we will often place an 1176, or similar fast compressor before an LA-2A, or similar optical-style compressor. The 1176 then handles the faster transient material, while the LA-2A handles the slower compression role, smoothing out the hole performance. The two colours of the FET-based 1176 and the valve and opto-cell based LA-2A compliment each other superbly, helping to push lead vocals out into the front of the mix.

When using this technique it can be very easy to over-compress, which can lead to a lifeless performance. So be aware of how much gain reduction is taking place, and while it should be possible to get a little more gain reduction with this technique than with only one compressor, it's just as possible to completely overdo it and ruin a great track.

**HIGHLIGHT**

Some compressors, such as the Shadow Hills Mastering Compressor, already combine two processors in serial. With these examples it's often not possible to switch the order of the compressors around, so you're stuck with using the compressors in the order that the manufacturer decided to put them in. If you use a plug-ins however, you should be able to add two instances of the same processor, bypassing one side in each of them to get the processors in the other order.



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→ MT Step-by-Step Serial compression



- 01** The vocal part in our example is a soft female vocal part. However, it has a certain edge to it, which needs to be rounded out. Furthermore, the vocal is quite dynamic with a few loud phrases particularly towards the end.



- 03** We usually start with a high-pass filter, which we've set to around 100Hz, and as there's a slight scratchy quality in the top-end we've added a cut around 9kHz. We've also brought the fundamental and first harmonic down with a low-shelf from 550Hz. Finally, we've boosted the air frequencies up at 18kHz.

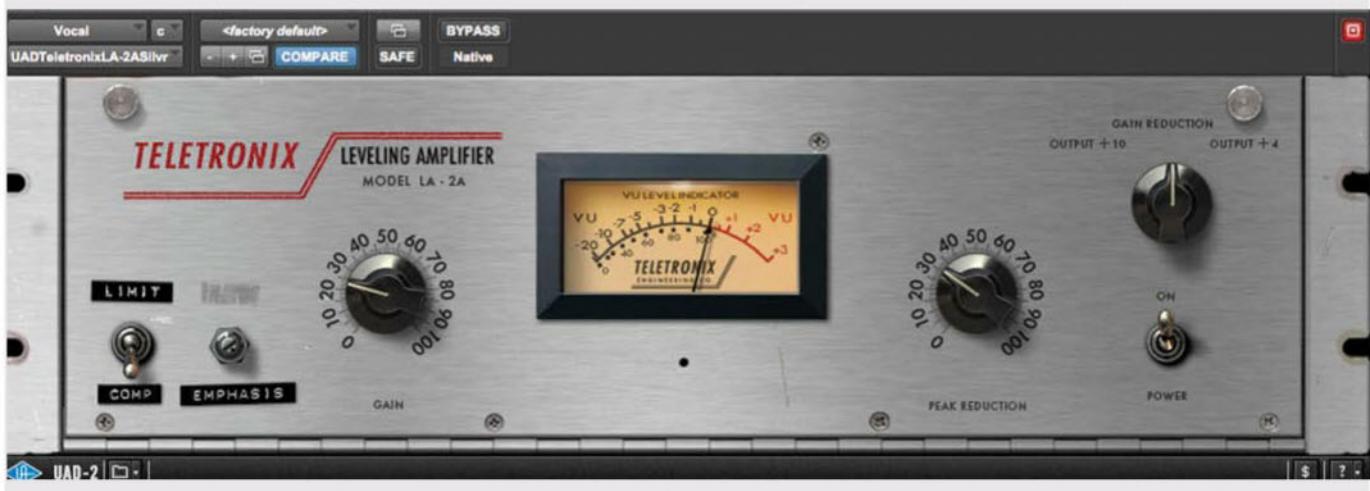


- 02** Last month we looked at placing EQ both before and after compression. Let's make use of this technique and add an EQ in the first slot. Remember that before EQ we like to use predominantly cuts to the EQ curve, rather than boosts.



- 04** The first compressor we've added to the vocal is an emulation of the early Rev A 1176 FET compressor on the UAD platform. Commonly known as the Blue Stripe compressor, this is a very characterful FET compressor, but you could substitute any other compressor with fast attack and release settings.

- 05** Unconventionally, the 1176 has the fastest attack and release marked with the highest values, and we've gone for a very fast attack, and moderately fast release to capture any transients that have got through. This coupled with a 4:1 ratio and very low input into the fixed threshold ensure very little gain reduction actually takes place other than on these fast transients.



- 06** As our second compressor we're using another UAD plug-in, this time emulating a Teletronix LA-2A optical compressor. Optical compressors are program dependent, and the attack and release characteristics depend on how much compression has taken place, but they're generally very slow.

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→ MT Step-by-Step Serial compression... cont'd



07 We've again used a very low Peak Reduction and Gain setting to ensure only a little gain reduction takes place. However across the two plug-ins we may now be getting 5-10dB for short times, with around 3-5dB of gain reduction more common.

08 Interesting results can be achieved by changing the order of the compressors. Try placing the slower compressor first,

and using the faster model after it. Each compressor causes the next compressor in the chain to respond differently, which will mean you have to readjust your threshold, or input levels.



09 There's no need to stop at two – you can mix and match as many compressors as you want, although be aware that each one will be leaving artefacts on the signal, decreasing the dynamic range and increasing the noise floor.



10 As each compressor in the chain is likely to alter the tonal balance of the signal, as well as the dynamic properties, it can be useful to add an additional EQ at the end to try and balance up the signal again.



11 Limiting is another form of compression, which can be combined alongside other compressors in a serial fashion. While mastering engineers like to use limiting at the end of the process, it is by nature a very fast and clean form of compression and can be useful earlier in the signal chain to remove transients.



12 In fact, you can combine all sorts of dynamic processors, including distortions, into a serial compression chain, and you probably have without knowing it. Be careful though: the more processors you use, the noisier and less natural your signal will sound.

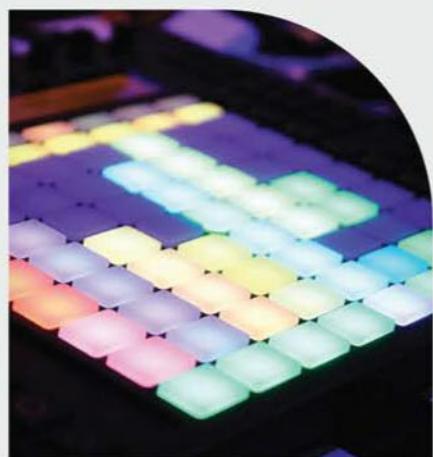


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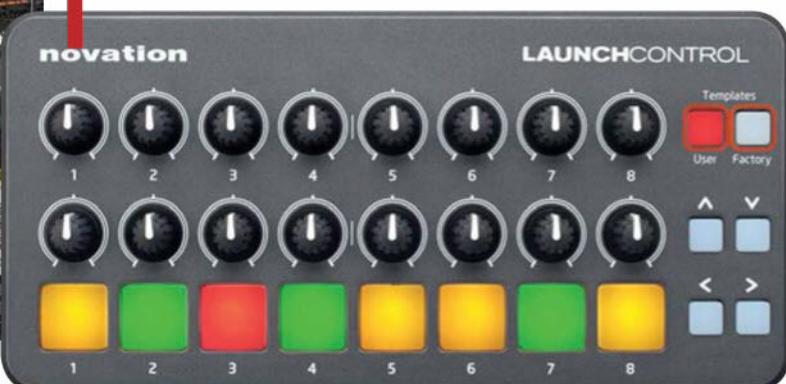
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MT Main Review

In-depth review ■ A classic reborn? ■ Analogue heaven in hardware



KORG ARP Odyssey

Not content with relaunching its own classic synth hardware – see last month's exclusive review of the MS-20m synth – Korg has decided to produce other people's too. And what better place to start than with the ARP Odyssey synth? And with a helping hand from one of its pioneering engineers to make sure the new version is as close to the original as possible – or should we say 'originals'? You see, this new ARP Odyssey is *all three* of the originals in one box.

Andy Jones embarks on what can only be described as the Odyssey of a lifetime...

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■ Key features

- See p71

Before I begin this 'odyssey' (sorry) I do have to supply a certain amount of background to give context. So if you're familiar with the original ARP Odyssey, skip a few paragraphs to the one headed, 'Read from here if you're over 35 years of age'.

If you're under 35, though, you may not understand the significance of this release and what it means to me and a hell of a lot of other people. I'll be as brief as I can, but please allow some self indulgence...

Pitch back in time to the late 70s and electronic music is filtering massively into the mainstream. Yours

truly has seen Kraftwerk, bought album number one (John Foxx's *Metamatic*) and has become slightly annoyed by everyone discovering his very own Gary Numan and Human League (original line-up), all of whom had used, or would soon use, an ARP Odyssey for their then unique sounds.

This synth and the Minimoog were very much the Gibson Les Paul and Fender Stratocasters of their time (of all time, some might say). These were the synths that brought the sound of the circuits to the masses. Kraftwerk got there first as they could afford early ARP and Moogs. The Brits came second with a bunch of low cost

versions, the Odyssey of which was arguably the most important. Electronic music was born, rave came next, and EDM followed a few decades later. The ARP and Moog made music history. And they made me the geek I am today. And then... well, the world went mad.

After a few hundred other companies got involved making analogue synths the world did indeed go a little crazy, abandoning the pure analogue format in favour of what they considered more palatable digital synths, with loads of preset sounds and other nonsense. Synths became a bit rubbish, and so did music.



Three new identical models in different colours represent the three major versions of the ARP Odyssey. If only it were that simple – see the history of the synth on p72.

But rave and dance music bought the sound of classic electronics to a new audience, and their sounds started appearing in virtual analogue hardware and soft synths on our Macs and PCs. And then hardware manufacturers finally cottoned on, and decided analogue was the thing the kids wanted so started making – and remaking – analogue synths.

We've had Novation bringing back the Bass Station, Studio Electronics bringing classic synth filters back in its Boomstar range (and adamantly sticking to analogue in the intervening years), hundreds of boutique modular synth companies doing their thing, and even Roland 'recreating' its classics – albeit in 'not quite analogue' form.

Korg, too, has been at it on the analogue front, notably with its Volca range of modules (which will soon have some competition with the new Teenage Engineering 'calculator' synths announced at NAMM). Korg also obviously has quite a heritage in analogue synths and has made – and

remade – its MS-20 in software, and reduced-sized hardware. Plus, as we saw in last month's exclusive review, in semi-modular format. And jolly good it is too. But now the company has gone one step forward – or three steps, actually. But rather than remaking yet

that with an announcement last year that it was partnering with original ARP engineer David Friend (although sadly not with founder Alan R Pearlman's backing) to reproduce the synth.

This year's NAMM show saw the results followed by fevered, geeky

Companies abandoned the pure analogue format in favour of digital. Synths became rubbish. So did music

another classic Korg synth, it has looked around to see what people want... what they really, really want. And that's an ARP Odyssey...

Read from here if you're over 35 years of age

Realising that the ARP Odyssey would be a great synth to remake – something we've all been screaming for, ooh, 35 years – Korg set out to do

excitement around the Korg stand, as not one but three models of ARP Odyssey, each representing the three defining stages of the range, appeared.

To be clear, though – and before you get as carried away as I did – the new version (singular) is JUST ONE synth in three different shells. The big differences between all three models of the original Odyssey (aside from the obvious cosmetic differences) was the →



→ **# One model in a choice of three colours representing each of the three original versions with a filter to select between them #**



filter used. (Actually it's a little more complicated than that and I attempt to clear it all up in the box on p72.) So with the new Odyssey synth, it's one model in a choice of three colours representing each of the three Mks, and a filter selector to switch between all three filter types across the range. All three versions in one: just choose the colour you want. Get it? The MkIII (orange and black version) is the most widely available of the new models, with the other two only available in limited numbers, so be quick if you want one of those...

So you get it

So you understand that this is the one synth many of us have been pining to be remade. Those that owned them have seen the value of the originals soar to a couple of thousand quid (depending on which version), all the time smugly enjoying its original tones.

And those of us that enjoyed the music first time around just want to get our hands on something to re-enjoy them and convince everyone that we were well in advance when it came to music tastes. Very futuristic indeed.

So here we have it: the 'new' Odyssey. Do we call it the ARP Odyssey? Korg Odyssey? Or the Korg ARP Odyssey? Apparently, it's simply the ARP Odyssey, so let's get on and test it...

Casing the joint

First things first and the Odyssey we get to test is the more widely available one in orange, and arrives in case and box pretty much as shown left. First impressions are great – we



Again this is the new Odyssey, albeit the 'MkII' version. Look opposite and over the page and you'll see this is identical bar the colours. Like the 'MkI' this is a limited edition....

love the case (even though its innards have an odd 'new' smell) which offers great protection and mobility, although maybe the option of having 'lead holes' or a playing position would have been great so you can literally just take it on

Those that owned the originals have seen their values soar to a couple of thousand, all the time enjoying those original tones

stage and play it from its case. It would certainly look cool if nothing else.

Build quality is sturdy although the on-off switch didn't work as we thought. It powers on for sure, but requires you to hold it in for a while to power off. Not a problem, but you need to be aware of this as I initially thought it was faulty! Sliders and switches, on the other hand, are decent, responsive and not flabby and loose, nor too tight.

The synth is set out in a logical way so now's the time for a quick look over its architecture. It's a two-oscillator (VCO) synth that's set out in a standard synth oscillator, filter and amplifier way albeit with some added bells and whistles (noise, ring mod and sample and hold) to give it a unique character.

You start with the two VCOs which have FM depth plus pulse width and depth sliders. The FM section of each of these can be modulated with a sine or square wave (or s/h mixer or pedal for VCO2); s/h (sample and hold section); or the ADSR envelope. The pulse width of each VCO can be

modulated by the LFO or ADSR. A noise generator allows pink or white selection and is also where more global pitch, transpose and portamento parameters are found. Next up it's the LFO section which includes controls for speed and how much each

output from VC01 (two sources) and VC02 (or noise) enters the s/h mixer.

Then it's the rather easier to understand mixer section. Here you

so there's plenty of routing, plenty of wobbling and, on paper, plenty of sonic variation. Which I'm happy to announce, as with the original, is what you end up with.

Like the original, all of these parameters may be twisted and turned, to make some harsh, mellow but mostly penetrating sounds all helped with its dual polyphony, oscillator sync and, now, the added drive and filter types. And these last two features are important because, actually, the new ARP is, in some ways, more sonically capable than any of the three original versions simply because you can select different filter types.

While David Friend may have been on hand to replicate everything on a circuit level (and we'll compare old and new shortly) it's the bonus filter types – and that drive circuit – that could set this new machine apart and give it something of its own character (rather than 'just' emulating the original).

The first type is a 12dB/octave circuit that delivers great punch and presence. Type 2 (24dB/octave) meanwhile sounds (to these ears) a little mellow and more unstable when you push the resonance. Type 3 is a bit more as you'd expect from an analogue synth: more stable and predictable. To hear the difference simply play something and switch between the three types using the resonance slider. It is very noticeable and offers a tantalising window on the differences of the originals, so gives this new Odyssey at least one thing to boast over its predecessor(s). As does the Drive circuit. This makes the voltage controller amplifier distort somewhat delivering more of a snarl and, some

Key features

- Analogue synth
- Duophonic
- 37 slim keys
- Switchable filters between all three original Odyssey versions.
- Case, jack leads and psu supplied.
- Connectors: pedal/ portamento input jacks; head-phone out; audio in; USB & MIDI; TrigIn/Out mini jacks; Gate In/ Out mini jacks; CV In/Out mini jacks; audio outs jack and XLR.
- Dimensions (WxDxH): 502x380x120mm
- Weight: 5kg

simply adjust levels of the main sources (noise or s/h and two VCOs) or how the filter reacts to the s/h mixer, pedal or AR and ADSR envelope generators. In this section you also get the gems in the new Odyssey's crown: the filters. First up you get VCF filter and resonance controls for that instant sound mangling, plus a high pass frequency slider. The two new controls are the filter selector which switches between the three filter types I mentioned above, and the Drive control which promises that the sound will have far more bite. Finally, you get sliders to adjust the parameters of above said envelopes.

Which might sound a touch complicated

Actually the architecture I've just described is fairly basic for an analogue synth, even though it might be a series of 'Os', 'As' and 'Fs' to the uninitiated. What you essentially have are three/four selectable sources, lots of modulation and lots of filter action,

The (rather annoying) history of the ARP Odyssey

It would be easy – not to mention lazy – to look back at the history of the Odyssey and say it came out in three distinct versions, with different colours, as re-imagined with this new model(s) on test. So the MkI was white, MkII was black and gold, and a MkIII orange and black. Easy, right? Annoyingly it isn't that easy as there were crossover periods and more model numbers than versions (if that makes sense). The Mk I Odyssey came out in 1972 (model 2800) and was essentially a compact version of the ARP 2600 modular and released as a cut-price, compact synth to compete with the Minimoog. With a white fascia, the filter

was a 2-pole voltage controlled model. In 1974 the colour changed – so some MkI models are black and gold rather than white, like we say, just to confuse things. The actual version number only went up to MkII with the arrival of model number 2810 (to 2815). The MkII also had a new filter (a 4035 4-pole VCF), although a few really early MkIIs boast the MkI filter! (Confused? Yes!)

This filter changed to a 4075 after a small but apparently amicable 'discussion' with Moog, although the 4035 remains the more sought after MkII model as the 4075 exhibits a weaker sound at a higher resonance. The MkIII

came out between 1978 and 81 (model numbers 2820 to 2823) and retained this filter although had a sturdier chassis and familiar orange and black colour scheme.

In total then, the Odyssey was in production for less than a decade but left a mark like few other synths. It was used in a vast number of genres – not just the electronic sounds so beloved by this author – and everyone from ABBA to Chick Corea, from Elton John to Herbie Hancock became fans.

Thanks to VintageSynth.com for filling in some gaps in our history...

→ might say, analogue character by simply beefing up the output signal.

On to the sounds, then, and I was quickly up and running. Not, of course, by dialling in presets, but creating sounds from scratch (so be prepared for a bit of leg work). The simplest starting point is to introduce both oscillators with a slight amount of

you can get some searing and cutting sounds and when you start to modulate just one, sounds with a lot of movement and attitude. Bass is catered for incredibly well and it's advisable to switch between the filter types to experiment here, especially with the filters. Overall, though, this is much less a mellow and deep

capture many of the original's quirks and idiosyncrasies. It is, on most occasions, definitely an Odyssey. Bass sounds capture that Autobahn moment, while soaring and buzzy leads proffer the best in Numan strings. Compared to the original it can fall very slightly down in terms of depth as often the classic has a presence that the new one just occasionally fails to reach.

However you'd be hard pressed to tell the difference unless you put one next to the other – which, fortunately, we got to do by way of GForce software's Dave Spiers. This is the man whose love of the original led to him developing the Oddity, the most well regarded software version of the Odyssey. He has compared all three with the new synth and says...

"My main point is that each of the originals were calibrated differently and will often sound different – even between the same model number. So it's almost pointless comparing like with like, but I have made some rough approximations between both and

It is what any Odyssey user will expect: searing, cutting sounds with attitude. Billy Currie called it the first punk synth and the new one has that snarl

detuning at first and then use the first to get the second in tune – maybe an octave apart so you can easily hear what's going on. Then you simply start modulating a little, imposing some envelopes and adjusting the frequency for a variety of sounds. And what you get is pretty much what any historical Odyssey user would expect.

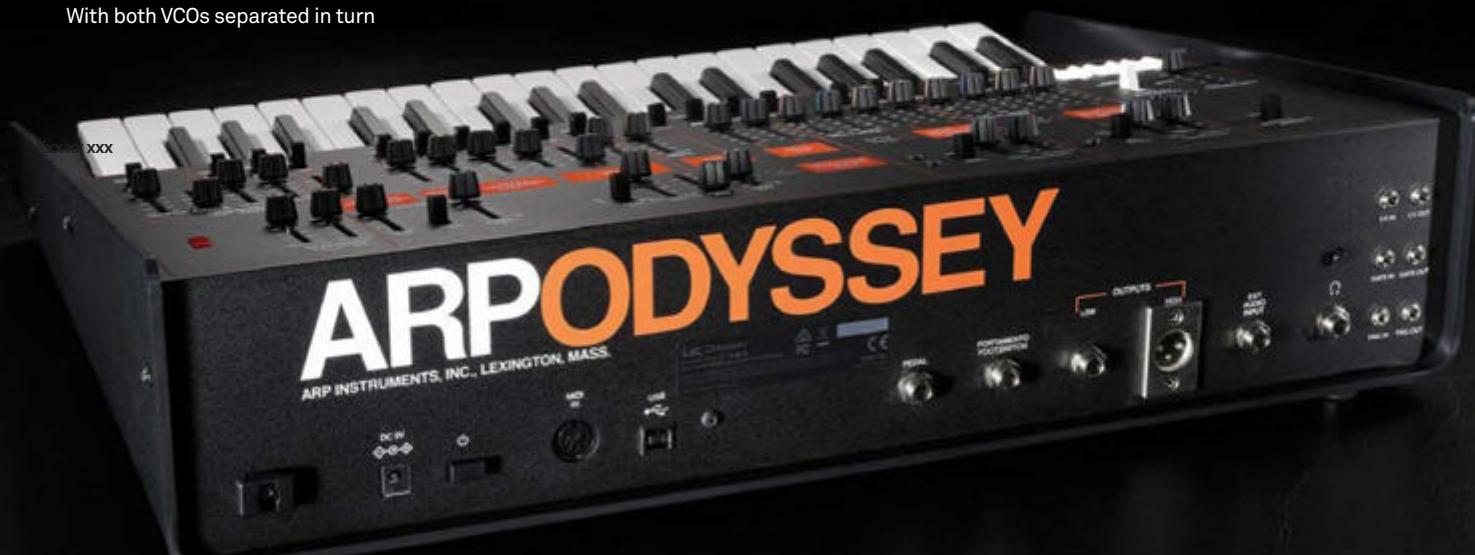
With both VCOs separated in turn

experience than you'd get from a Moog and more a raspy and in-your-face one. Not to everyone's taste, but certainly if you want analogue attitude, it's here.

Sounds – capturing the spirit

So, new features aside, how does the new ARP measure up to the original? There's no doubting that it does

For a list of connectors see Key Features on p71.





The MkIII was the most widely sold version of the Odyssey back in the day, and the main one that Korg is selling with the other two only available in limited numbers.

got some very close results – you won't hear differences in the mix.

"A key sound is the sync sweep lead and here again I got some really close results. Another key thing is that with duophonic mode, the original has some very distinct ways of triggering notes as you play them.

"Using duophonic mode in conjunction with the ring modulator is a thing of joy. Tune each of the VCOs an octave apart, add a slight detune and then push the ring mod slider up and drop back the VCO1 and two sliders. Playing single notes sounds aggressive but then adding a second note gives you ring mod distorted bliss. However, on the original the harmonic intervals are a lot more 'in-tune' with your root note whereas this new version doesn't quite hit the same intervals. It can still tear your head off though, and it certainly captures the essence and the aggressive character which was the big difference between the Moog and

the ARP. Billy Currie (Ultravox, Visage) called the Odyssey, 'the first punk synth', and this new synth has definitely got that snarl.

"And what I also love about the new one is that it's small, light and it's sexy. People might whinge about the slim keys but it has MIDI and USB. If you were to retrofit an original ARP to do this it would probably cost an extra £500 alone!"

So what do we think?

The new ARP does a good job. It's not 100% perfect and I'd like to say I could hear the difference side-by-side with an original, maybe six times out of 10. But it certainly captures the spirit of the original. You'll be able to create that character with ease, and in isolation you'll be very happy with the results.

For the money, it represents a serious amount of sound and hardware. It's enough like the original to make anyone who lacks long pockets sit up and take notice. However there is a caveat to anyone else. Don't just buy it because you've heard the ARP Odyssey was (and is) an awesome synth; try out the original or the many software versions first (for which the GForce Oddity v2 is as good a start as any).

The reason I note this caution is because, at the end of the day, this is simply an analogue synth which comes with restrictions that go with the territory. It lacks great polyphony and presets so it's not going to set your inspiration on fire as much as the do-it-all 'digital' soft synths you might already have (or the Moog Sub 37 analogue that you should want).

But this is as close to a synth that featured on more classic electronic tracks than most. It's also a sturdy piece of hardware that you can interact with more than any software and come up with some great classic, analogue sounds. The case is cool, you can choose the colour (for a time) and it's compact and playable. We'd certainly recommend it to those after the original experience on a budget and to those who want to audition one of the greatest synths on a smaller scale. The start of many remakes? See p6 for more... MT

MT Verdict

ARP ODYSSEY

- + Captures the character of the original synth
- + Rugged construction and fine hard case
- + Easy to use
- + Three filter types to choose from
- + Drive circuit adds oomph
- + Huge depth and sonic range
- + It's an analogue synth!

- It's (just) an analogue synth!
- Slim keys might not suit everyone

The new ARP Odyssey has the character of the original and matches it on many levels. It has extra sonics, comes in a handy case and is a great buy for classic lovers. But it is 'just' an analogue, so preset hunters beware...

9/10

Choice

9/10
MusicTech

Alternatives



You can't ignore the original ARP Odyssey, of course, as many still pop up on the second-hand market. But, with the history as complicated as it is, you have to be careful to pick and choose your model. The MkII with a 4035

filter is certainly sought after but you might end up paying through the nose for it (between £2500 and £3200 depending on condition). As we write there is a MkI on eBay for £1600, a MkII for £1500 and a MkIII for close to £2000 – so prices do vary. There also seem to be more available from the States than the UK so watch out for shipping costs – not to mention the fact that auditioning might be difficult! Software-wise perhaps the best is the (now almost classic in itself) GForce Oddity. Recently updated to v2 it features polyphony, presets and oodles of extras over the original. It retails for £116.66 (www.gforcesoftware.com).



ROLAND TR-8 7X7 TR-8 Drum Machine Expansion

We're playing a bit of Aira catch-up in this issue with an update for the TR-8 drum machine. **Andy Jones** TR-ies it out. Oh stop it...

Now that all the Aira fuss has died down a little, the overall plan is now a little clearer with various models in the range getting updates, including the System-1 keyboard and now this for the TR-8.

While System-1 was always designed to be the shell for classic Roland mono synth upgrades, TR-8 was touted very much as a standalone 808/909, so the addition of some more classic sounds is welcome, if a little unexpected. At €75 the expansion – which takes in both the Roland TR-707 and 727 drum machines – isn't cheap. But what the hardware should offer with them is total control over the sounds, so you can generally mess with them just like you would on the originals. And, of course, you should also be able to create patterns using the very intuitive TR-8 front panel.

Not only that but the download offers four extra 808/909 sounds for the TR-8 plus the 'flam and accent' features found on the 707 and 909.

Download to upload

You buy the sounds – or indeed a download code (after registering your

Details

Price **€75**
Contact **01792 702701**
Web www.roland.com
Minimum System Requirements **Mac or PC needed for install plus latest firmware and drivers**

details at Roland.com). Before installing your download, you'll need to make sure you have the right version of the latest TR-8 driver (I didn't and needed to) and its system software (v1.11 at time of writing which I fortunately already had). If you don't have them, both (plus a lot more) are rather neatly available at www.roland.com/support.

Once these are installed, uncompress the 7X7 download and activate it using your Roland account details. It's a bit of a faff – we had trouble with the actual activation process and it required a Mac restart or two – but such code shenanigans are a necessary evil these days.

Up and running

Finally we're good to go with the sounds and this is where it gets good. Really good. There aren't extra patterns as such included – you still make do with what TR-8 starts with or your own – but the extra 7X7 sounds are easily wedged into these kits and use a clever colour coding system so that you can do just that. Simply hit the Drum Select Inst button and then choose which of the 11 kit sounds you want to change (kick, snare, hat, etc).

Hit one of these and you now have a choice of not just the original 808 and 909 sounds that ship with the TR-8, but also the newly uploaded 707 and 727 sounds to boot, all cleverly colour coded. So hit Bass Drum, for example,

Key features

- 707 and 727 kits
- 15 x 707 kit sounds
- 15 x 727 kit sounds
- Real-time controls over all sounds
- Can use with fx and Scatter fx
- Easy pattern creation

Alternatives

7X7-TR8 helps turn the TR-8 into a 707 and 727 drum machine complete with sound editing options. If you want the original sounds there are plenty of sample collections from the likes of Loopmasters that will tick the boxes but won't offer real-time sound editing options.

and you get two pink 808 options to choose from, plus two yellow 909s, an orange 707 and a blue 727. Hit another kit and again you get different options, each sticking to the 808/909/707/727 colours as described.

With a maximum of eight sonic options (mostly on the toms), there are plenty of choices to change existing kit setups, with a variety of sounds from all four classic kits and, of course, you can then easily program your own patterns. Interestingly, there are still plenty of sound slots (a minimum of eight) for other possible uploads so some more kit options could become available in the future.

All real-time sound edit options are, of course, available for your new 7X7 sounds (thanks to Roland Analog Circuit Behaviour modelling circuitry), so you can tune; add accent, scatter and reverb; and change the attack/decay parameters at will. As we expected, then, this is a lot more than adding a bunch of samples and really opens up the TR-8.

The only misgiving I had with the TR-8 when I reviewed it originally was the lack of pattern spaces and this still needs to be resolved. And with the 808 and 909 sounds that ship with it, you arguably have the best that Roland has ever offered beats-wise, so does the 7X7 offer enough for the cash?

I would say it's a worthy addition, if only to expand TR-8's sonic arsenal. The performance capabilities it already offers (including Scatter Mode and the easy pattern creation facilities) combined with these new options take TR-8 into new rhythmic territories so nicely open up its creative options. **MT**

MT Verdict

- + Great new sounds expand the capabilities of TR-8
- + New features too
- + As expected, great control

- Bit of a faff uploading
- No new patterns

It's not a must-have, but could sway you to buying the TR-8 as it's not just an acid machine now.

8/10

The Spirit of Analogue



Dinosaur Impersonating Virtual Analogue

Diva's oscillators, filters and envelopes closely model electronic components found in some of those great monophonic and polyphonic synthesizers of yesteryear. Modules can be mixed and matched – build hybrids of those classics!

What really sets Diva apart is the authenticity of analogue sound. Diva is the first native software synth that applies methods used in industrial circuit simulators (e.g. PSpice) in realtime. We think she's a game-changer.

Includes 1200 presets from 5 decades

Download the demo version for all common plug-in formats and platforms [here*](#):

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Urs Heckmann - Audio Software

*while you're at it, check out the award winning ACE, Zebra, Uhbik, Filterscape and More Feedback Machine too. Same developer, same website, same fun factor.



UNITY AUDIO Lisson Grove AR-1

Unity Audio has begun manufacturing an old legend. **Mike Hillier** takes a walk along Lisson Grove...

Details

Price £2395

Contact

Unity Audio 01799 520786

Web www.unityaudioproducts.co.uk

Key features

- Valve vari-mu compressor
- Variable attack and release

The Lisson Grove AR-1 is a vintage-style valve compressor based on the 60s studio classic, the Altec 436. (See our history of the Altec 436 in Studio Icons www.musictech.net/2014/05/altec-436.) In particular, it's based on the EMI RS124 version of the Altec 436B as used at Abbey Road. For those not in the know, Lisson Grove is a road (and also the district around it) in North London, which runs into Abbey Road.

The AR-1 is a valve vari-mu compressor with three valves: a 6AL5, a 6BC8 and a 6CG7, with high-quality Mullard and RCA tubes. For extra colour there's also a Sowter input transformer and a Cinemag output transformer.

Old and new

The AR-1 compressor has fully variable attack, and six fixed release settings, ranging from 320ms to 3.85s, plus an infinite release setting between each of the six positions. The infinite release option is an intriguing setting. Left in this position the AR-1 reduces the gain of everything passing through it by the same amount – not a hugely useful scenario. However, it can be used to prime the unit to a given amount of gain reduction before the artist starts performing. The engineer can then

move the release back into one of the six settings as soon as the performance is under way. This is a little tricky, but it's useful once you get the timing right. To make it easier there's a 1/4in jack on the rear for triggering the infinite hold from a footswitch. I also got some use from this feature keeping the noise floor down during a quiet passage, by engaging the infinite release after the last note and releasing just before the first note of the next passage.

Pull the attack knob out and the compressor goes into bypass mode, but the signal will still pass through the input and output gain stages, so you can use the AR-1 simply to add colour to your signal. Further colour can be achieved using the output load knob, which varies the output impedance. The original units had an output impedance of only 2000Ohms, which produces a dark tonality, but the AR-1 lifts this to a more modern 600Ohms, producing a clearer tone.

Transient squashing

An inherent feature of vari-mu compressors is that the compression

Alternatives

The Altec 436 vari-mu design is at the heart of several valve compressors. And while purists may favour the Lisson Grove, there are several alternatives to consider including the Thermionic Culture Phoenix. However, even though they're based on the same Altec 436 basic design, these units end up quite different and don't sound all that alike, so be sure to test out a few to find the sound that works for you.

ratio responds to the incoming signal: as more compression is applied the compression ratio also increases. This is a great feature, enabling the AR-1 to just tickle the signal as it passes the lowest settings, while slamming down on any loud material heavily. The AR-1 isn't the fastest of compressors, so fast transients are pushed through.

However, with the attack knob dialled to its fastest setting it's still possible to clamp down and shave transients clean off, if that's the desired sound.

On vocals the AR-1 adds a glorious richness to the signal even with no compression applied. Even after level matching the before and after, the extra harmonics added by the AR-1 really brought the vocal to life. This brings the compression into play, and I was able to really smooth out the performance.

On bass the additional harmonic content again helped give weight and gravitas to the signal, while the compression – with a fairly slow attack and fast release – helped us place the instrument in the mix. This time we also used the O/P Load knob to dial the impedance down slightly. Even just a little off the 600Ohms position and the bass seemed to just slot into place.

The ability to push signals through the AR-1 without compressing meant that I was able to use it to process signals in the mix that I didn't want compressed, but still wanted to punch through in the mix – and once I got started it was hard to hold back. The kick drum in the mix sounded especially weighty once it had been processed through the AR-1 with no compression. Whereas if I left the compression in, it sounded a little soft.

The Lisson Grove AR-1 is a fantastic compressor. While it's vintage heritage is fascinating, and anyone wanting to get that Paul McCartney bass sound might want to run out for one of these, it's actually a very flexible compressor for all music-makers. **MT**

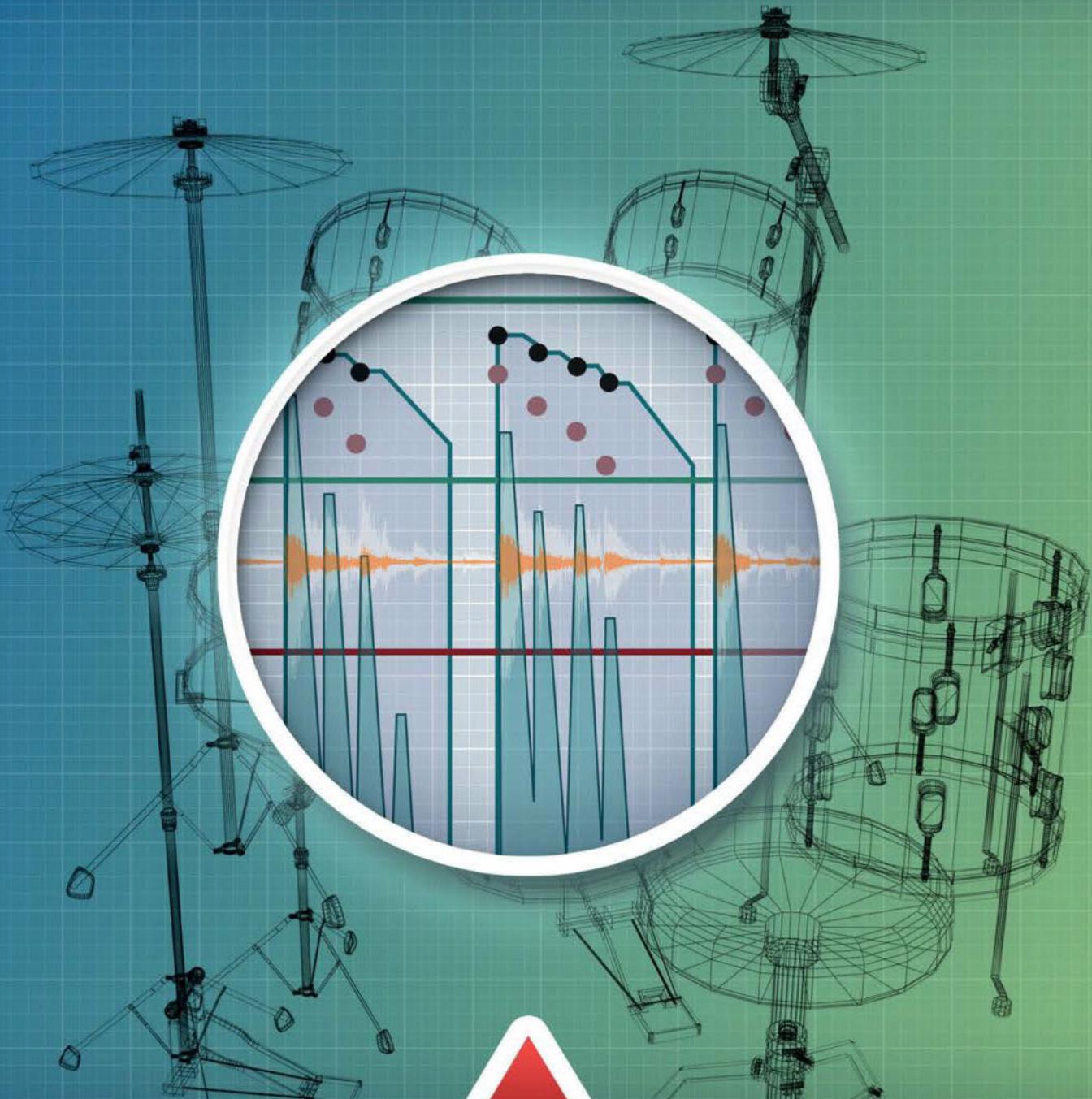
MT Verdict

- + Great sounding vari-mu design
- + Interesting infinite release option
- + Compression can be bypassed to just add analogue warmth

- Valves require 30 minutes to warm up

A great sounding vintage-style compressor that adds a richness to any signal and can be pushed without sounding aggressive.

8/10



MDrumLeveler

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VIENNA SYMPHONIC LIBRARY Vienna Solo Voices

If pop and sampled new age solo voices don't suit your production, why not consider classical? **Keith Gemmell** raises his voice...

Several virtual instruments have been released lately featuring solo voices. Most, though, are only suitable for pop or new age styles. Classical voices are much harder to source – so where do we look? First call has to be the Vienna Symphonic Library. Vienna Choir was released five years ago and it's been a long wait for the Vienna Solo Voices, which went on sale at the beginning of this year.

The product is sold in two parts: a Standard Library and an Extended Library. Whether you buy the Standard Library or both together (Full Library), the entire content of the Full Library will be installed. Depending on the licence you buy, the Activation Code unlocks the corresponding portion of your library.

The vowel sounds AA (aah) are in the Standard Library, and probably the most useful. The articulations are aa, pa, ra, sa and ta. UU (ooh) sounds are contained in the Extended Library, which costs extra. Articulations here are uu, tu, pu, ru, and su. The package includes the Vienna Instrument player, both plug-in and standalone versions.

Prima donnas

There are four female voices: coloratura soprano, soprano, mezzo soprano and alto. They all sound good and are subtly

distinctive from each other in tone and range. Perhaps the best is the coloratura soprano, which in the real world is typically chosen for operatic roles where melodic embellishment and much agility is required.

The coloratura here is certainly agile and responds to fast runs and leaps beautifully. She's dynamically responsive, too, with glass shattering capabilities at her highest and loudest, but soft enough – when required – for cooing a gentle lullaby. This is due, no doubt, to the careful adjustment of loudness within each articulation's velocity layers so that low notes sound softer than the higher ones at the same velocity level. There are three male voices too: tenor, baritone and bass – which round up the main vocal content. Each one of them proved every bit as good as the female contributions.

Huge cinematic choirs are very much in vogue at present. Their use is restricted mainly to background pad work or chanting and therefore avoid the scrutiny of upfront listening. It is a brave developer, then, that dares to compile a sample library of solo classical voices where every syllable will be clearly heard. VSL, though, has pulled it off here for sure. The results are really very impressive.

That said, achieving convincing results requires a lot of work on your part: extensive user control and careful editing within the Vienna Instrument player gets the best sounds. Fortunately, there are plenty of controls for editing the individual samples and

Details

Price Standard Library: £295; Extended Library £490

Contact via website

Web

www.vsl.co.at

Minimum System Requirements

PC Windows 7 (32/64-bit)
Mac OS X 10.8
2GB RAM (4GB recommended)

Key features

- Three soprano voices (female)
- Alto voice (female)
- Tenor, baritone, bass voices (male)
- AA and UU vowel sounds
- Extensive articulations
- Vienna Instruments player

Alternatives

Zero-G Vocaloid 2 Prima (£82) is a virtual female operatic vocalist modelled on the voice of a soprano singer – synthesized singing. From the same product range comes Tono (£49), which covers the tenor and baritone vocal ranges. The Voice of Rapture category, from Soundiron, features soprano, tenor and bass (\$119).

delicately shaping the overall performance of the voices.

Of course, a sampled vocal set is never going to sound totally realistic, no matter how good, because of the lack of words. Some developers go some way to improving this with word builders but they rarely sound convincing unless they're set way back in the mix.

This is never going to be a massively popular library but is sure to sell well to composers of classical music, and will certainly enhance VSL's existing high reputation. Solo voices along with a good choir library can make an impressive combination, and cinematic composers who might at first pass this library by would be wise to give it a second listen. Incidentally, if you already own Vienna Choir and like it, you'll not be disappointed with Vienna Solo Voices. Both libraries operate similarly and blend very well.

Whistle blower

At this point, it's worth mentioning VSL's other new vocal product, Vienna Whistler (£55). During a recording session, VSL discovered that one of their blowers, horn player Marcus Schmidinger, was a virtuoso whistler. So they recorded him performing a wide range of articulations. The result is a brilliant little virtual instrument that's great fun to work with and sure to bring a smile to many a composer's face. **MT**

MT Verdict

- + Seven classical voices
- + Excellent coloratura soprano
- + Blends well with Vienna Choir

- Lacks word building
- Standard Library only contains AA articulations (Extended Library contains UU articulations)

Being classical, they won't be to everyone's taste but the Vienna Solo Voices are beautifully sung, meticulously recorded and, as a collection of seven individual singers, the best you can get. Highly suited to detailed classical work and, to a lesser extent, for cinematic work.

9/10



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Combining an extremely compact design, extraordinary build quality, full **iPad** connectivity and the outstanding D-PRE mic preamp, the UR12 redefines quality for its class of 2-in 2-out USB interfaces. 24/192 converters offer you outstanding levels of audio fidelity, while the D-PRE gives your **microphone** recordings incredible detail, depth and dynamics. **Guitarists, vocalists, songwriters** and producers requiring a very portable interface with amazing sonic characteristics need look no further.

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YAMAHA CP4

A serious player needs a serious instrument. **Hollin Jones** finds out if Yamaha's CP4 has what it takes...

Yamaha has been making digital stage pianos for many years, and of course also builds all kinds of real pianos from uprights to concert grands, making it one of the few companies that can claim to have expertise in both electronic and acoustic piano design. For the uninitiated, stage pianos are 88-key digital keyboards with weighted keys that place an emphasis on the playing experience as well as the sounds themselves. They are, simply put, designed to be played on stage, although you can of course use them in other environments including your studio. Unlike workstations or controller keyboards they have a relatively small feature set, but concentrate on doing a few things well instead of trying to be all things to all people.

Look and feel

The CP4 is surprisingly portable for a high-end stage piano, weighing in at 17.5kg. So unlike some with weighted keys it won't tire you out too much when you're carting it about. The design is ever so slightly retro, with a textured panel running across the top surface that adds a touch of class and is reminiscent of the vintage electric pianos of the 1970s. Otherwise the design is sleek and muted and all the features are well laid-out. On the rear panel you'll find all the in and out stuff, starting with a pair of balanced XLR and one of unbalanced jack plug outputs.

Details

Price £1908
Contact [Via website](#)
Web www.yamahasynt.com

Proper XLRs are nice for connecting to more heavyweight PA systems and there's also a headphone output, though this might be slightly more convenient were it located on the front edge somewhere.

There are two foot controller input jacks to which you might want to connect pedals for altering wah, volume or expression, and there's also a sustain pedal input for connecting the supplied FC3 half-damper sustain pedal. Full marks to Yamaha for including a sustain pedal, which is a vital accessory for any kind of realistic piano playing. You might think such an inclusion was a given for a flagship piano, but it hasn't always been among some manufacturers. There's also conventional 1x1 MIDI in and out ports and a stereo mini jack aux input for connecting an MP3 player or similar. Two USB ports are also available: one for connecting to your PC or Mac for triggering virtual instruments, and the

Alternatives

Roland's RD-800 stage piano is similar in price and has a comparable feature set. It's larger and heavier, and also has more sounds built-in as well as some hands-on effect controls on the front panel. Yamaha also makes the CP40, a similar but slightly cut-down version of the CP4. It costs less but has fewer sounds – however this might suit your needs. A comparison is available on the website.



although the piano action is realistic and responsive, it also doesn't seem to put up too much resistance to runs when you're playing electric piano and organ parts. Whether this is

Choice
9/10
MusicTech

Key features

- 88 graded hammer action wooden keys
- 45 grand piano presets
- 47 electric piano presets
- 341 voices in total
- 62 VCM effect patches
- XLR and jack outputs
- 2xUSB ports
- MIDI in and out
- Onboard song recorder and metronome
- Included sustain pedal

The CP4 is unusual in having wooden keys covered in synthetic ivory and they play beautifully

other is for connecting a USB thumb drive to store and exchange files with the keyboard. A file recorder is available with straightforward controls on the front panel including a metronome, and data is managed using the utility menu as is generally the case on these kinds of instruments.

Making the grade

The CP4 is unusual in having wooden keys covered in synthetic ivory and they play beautifully. There's also a graded hammer action meaning that the lower keys are a little heavier and the higher ones a bit lighter, just like you would get on a real grand piano. Impressively,

coincidental or a deliberate design decision isn't clear but either way it's very welcome. Different keyboard instruments can require very different playing styles, and making a keyboard that responds well to all of them can be very tricky, but Yamaha seems to have pulled it off here.

The front panel layout is fairly simple compared to workstations. This is actually a bonus since it means all the controls you need are at your fingertips, but you're not going to be blinded by hundreds of buttons and pads when all you really want to do is play. There are 341 voices in total in the CP4 and these focus heavily on



SOUND THAT TRAVELS.



Photo: Radek Barczak - E-MUZYK.pl



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→keyboards as you would expect. There are 45 grand and 47 electric pianos, with the remainder split between organs, clavis, strings, pads, synths and a few others.

Play it again

If you're buying an instrument like this, it's the pianos and piano-based sounds you're going to be really interested in.

organs, though the Leslie effects aren't quite the most impressive around. The remaining instruments cover percussion, pads, synths, strings and even some guitars. These sounds – taken from the MOTIF synths – are nice to have, although a piano pretending to be a brass section or a guitar, even these days, still sounds a little artificial. Again though, you're not going to buy this because of its guitar patches, but they could be handy to call on occasionally.

There's a master EQ section on the front with five sliders for realtime manipulation of the signal. These can be really useful in live performance if you suddenly find your piano needs a

■ The electric pianos are **authentic** and vary in character from clean through tremolo, chorused and distorted ■

There are several models, each with variations like mono, compressed, dark and so on to suit your needs. First up are the CFX and CFIIIS pianos: rich, impressive and stately. With a room-filling sound they're suitable for everything from classical to pop. The S6 is a more intimate piano, suited to accompanying ballads or more stripped-down music, and the CP80 electric grand brings that classic sound to your performances.

The electric pianos are excellent too, with a variety of Rhodes and Wurlis on offer. These are lush and authentic and vary in character from clean through tremolo, chorused and distorted, so you can dial in the amount of dirt and soul you want, or tweak the amount of key noise for a cleaner sound. A DX7 model is also included for a classic 80s tone, and there are some great clavis and

bit more weight, or your clavi is too spiky at the top end. Physical transpose controls are also provided and visual feedback is via the small but perfectly adequate LCD screen where you also manage system setup and file operations. The keyboard can be split and layered as you would expect for the purposes of dividing it into zones like a bass in the left hand and a piano in the right, or putting strings behind a piano sound and then balancing the volumes of the two. A further control section to the left lets you assign the function of three sliders. They can either alter volume, chorus or reverb levels for the currently selected part. Though you can dig down into a software menu to make more detailed changes to effects, it's good to be able to do it in a second or two from here as well. Speaking of effects, there are 62 VCM effects

(Above) The small LCD enables you to manage setup and file operations.

(Below) All the ports are round the back, which makes the CP4 very clean-looking.



Method spot

Real pianos use hammers to strike metal strings and this is what generates the sound. While there are no strings inside a stage piano, hammer action keys are used to simulate the weight and feeling of a real piano keyboard, because this is a much more natural and effective way for players to interact with the instrument than using synth action keys.

onboard including reverb, chorus, a five band master EQ and a compressor. Effects can be punched in and out for both parts and adding some master compression helps to give a boost to the overall output of the instrument.

The next stage?

The CP4 is an excellent stage piano and one of the most playable I've ever used. The keybed is accurate and responsive and manages to deal equally well with the differing playing styles required for piano and electric piano, and to a slightly lesser extent for organs too. For live performance you'll find all the controls you need within easy reach and it's remarkably portable while still feeling solid and well built. The piano sounds are excellent, and while you won't find anything particularly unusual or gritty, the grands are first rate. The electric pianos have soul and the organs and clavis round out the retro section. Synths, strings and the rest are useful to have and acquit themselves well, though it's the keyboard instruments that are really the focus. An instrument like this is a serious investment, but if you're serious about performing or even just improving your playing skills, a player's instrument like the CP4 will definitely serve you well. MT

MT Verdict

- + Excellent playing action
- + Stunning grand pianos
- + Gorgeous electric pianos
- + Good selection of other sounds
- + Onboard effects add depth and clarity
- + Well laid out for live performance
- + Good I/O
- + USB functionality
- + Bundled sustain pedal
- + Surprisingly portable

- Buy it for the various piano sounds rather than the more generic sounds
- Headphone port on the front edge might be easier
- Organ rotary effect is a little lacklustre

A serious player's instrument and one of the most responsive and best-sounding stage pianos around.

9/10



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It features a dual capsule design with back to back 35mm Gold capsules operating via a VPM (Voltage Phase Matrix) which maintains a highly predictable polar pattern.

For more information, please visit:

www.studiospares.com



STUDIOSPARES



Choice
9/10
MusicTech

■ Details

Price P49 £1499;
P28 £720

Contact

KMR Audio
0208 445 2446
Web www.pelusomicrophonelab.com

■ Key features

P49

- 34mm K-47 style capsule
- Frequency range: 20Hz/20Khz
- Polar pattern: 9 - Switchable from omni- to bi-directional
- Sensitivity: 15 mv/pa
- Impedance: 200 ohms
- SPL: 147 dB
- Equivalent Noise: 14 dB(A)
- Tube Type: 5744WB
- Dedicated power supply, 115V or 230V AC
- Size: 60 x 205 mm
- Weight: 731g

P28

- 18mm edge-terminated capsule
- Frequency range: 20Hz/24Khz
- Polar pattern: cardioid (omni available - special order)
- Sensitivity: 11 mv/pa
- Impedance: 200 ohms
- SPL: 141 dB
- Equivalent noise: 15 dB(A)
- Tube type: EF732
- Dedicated power supply (115V or 230V)
- Size: 28 x 184 mm
- Weight: 300g

PELUSO P49 & P28

Peluso produces replicas of classic microphones with bespoke circuits, high quality components and capsules that are assembled and tuned in house. The best bit is that they are affordable and sound fantastic. Does the latest tube twosome make the grade? **Huw Price** tests the P49 and P28...

By and large the clues are in the numbers. For instance the Peluso P12 is a replica of the AKG C12, and the P67 is a Neumann U67 replica. Similarly the 2247 and 22251 are modelled on the Neumann U47 and Telefunken ELAM models respectively. If you have a basic knowledge of vintage microphone nomenclature you'll easily figure out which Peluso is which and what sort of tone to expect.

Having ticked boxes for most of the esteemed vintage microphones, attention has now shifted to less widely known and more specialised models. The Peluso P49 was created at the request of customers who wanted a Peluso with the characteristics of a Neumann M49.

The 49ers

Although not as iconic as the Neumann U47 or U67, the M49 was a valve microphone that outlasted both with a production run stretching from 1949 until 1974.

Like the U47, early examples had the M7 capsule, but the preamp was based on smaller audio quality valves called

the MCS2 (firstly) and later the AC701. A continuously variable selector mounted on the power supply unit set the pattern from omni to figure-8 via cardioid – and all points in between.

Where the U47 employed a simple voltage on/off switch for the capsule's rear diaphragm, the M49's selector varied its bias voltage, ensuring that output levels remained consistent regardless of the setting. The M49 was also the first Neumann to be fitted with the now familiar sloping microphone grille to minimise standing waves within the capsule housing.

Although somewhat different in shape, the Peluso P49 has a sloping grille housing along with a pattern selector mounted on the power supply. It's switchable rather than sweepable, but with nine patterns it's hardly a compromise. Inside a small valve is soldered into the circuit – just like the originals. The AC701 is long out of production and prohibitively expensive, so Peluso has selected a 5744WB triode to feed Peluso's highly regarded BV-11 output transformer.

One feature that hasn't been replicated is the M49's yoke style stand

attachment. As someone with plenty of experience with the M49, I'm relieved that the P49 comes with a regular suspension mount. Although it looked iconic, the yoke was pretty cumbersome in reality and it offered little in the way of shock isolation.

Pencils out

The P28 model designation implies that it was modelled after the AKG C28, whereas in fact its inspiration comes from vintage Neumann as well as AKG valve pencil microphones. Like the P49 it's fitted with a small soldered-in valve – this time an EF732 pentode, which has started cropping up in a lot of modern valve microphones.

The P28 ships with an 18mm edge terminated cardioid capsule. The way the valve and components are mounted on the PCB is nothing short of a work of art, and the P28's output is transformer balanced. Matched pairs can be ordered along with omnidirectional capsules are available.

The consensus is that the P28 was designed with elements of the Neumann KM54 and the AKG C28, so →

■ Alternatives

Neumann's M149 (£3,333) is an 8-pattern valve condenser with a transformerless preamp. Apparently it's engineered for low colouration and the ability to drive a 300m cable. For many users the former misses the point and the latter won't be of much benefit in a project studio environment. Alternatively the Flea 49 (£3360) looks and (apparently) sounds like the real thing. The market for valve pencil condensers is somewhat smaller but you could check out the Advanced Audio Microphones CM-28 (\$535) or the Avantone CV28 (£425).

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→ we were expecting "warm rich tone, capturing the low frequency detail and high frequency air of the classics" as described. Peluso advises that the P28 sounds beautiful on acoustic guitar, drum overheads, piano, voice and more.

As with all Peluso microphones the P49 and P28 are fitted with heavy-duty screw on cable connectors with large diameter pins. Each kit includes a wooden box for the microphone along with the power supply, and a shock mount packed together in a flight case.

There wasn't much point in comparing the P49 and P28 directly because they are such different microphones. Instead we decided to pit the P49 against a vintage Neumann CMV563 with an M7 cardioid capsule, and the P28 was compared with a little-known gem called the Elation KM201, which pulls off an impressive Neumann KM84 impersonation.

P49

Starting with the P49, we should point out that we weren't expecting it to sound like the CMV563. Our review of the 22 47 demonstrated that John Peluso is perfectly capable of making great U47 soundalikes. What we were looking for was Neuman-esque velvety mids with extra midrange detail and a scintilla of extra treble – just like an original M49. And in short, that's exactly what the P49 delivered.

Although there is much love for the iconic U47, the M49 was a technically superior microphone and Peluso has captured much of its essence with the P49. On vocals the differences aren't quite as apparent but the P49 trades 'character' for a bit more openness in the mids, and you may hear clearer articulation with consonants.



(Above) The P49 delivers the quality you'd expect from a Neumann – and more.

(Below) The P28 always sounds great, wherever it's placed.



P28

Those who associate valve mics with thick midrange, rolled off treble and 'musical' overload characteristics may be surprised by the cleanliness, purity and treble response of well-engineered valve

Switching over to acoustic instruments with more high frequency content the P49's extended treble response really shone through. Acoustic guitar, piano and even drum overheads are all possible applications for the capable P49, and in essence it gives you all the vintage Neumann flavours you

Method spot

Using valve microphones requires a little more time and planning than regular condensers. For starters you need to connect the microphone to its power supply, then connect the audio output of the power supply to your mixer via a regular XLR cable. The power supply will also need to be within easy reach of a mains outlet. Take care to line the connectors up carefully – there's usually a guide notch to help you. Also ensure that all your connections are made before you switch on the power supply to keep you and your microphones safe.

pencil microphones. And the P28 is a case in point.

Any concerns about the sensitivity of the P28's medium capsule and signal to noise ratio were quickly dispelled. The sound this microphone produces is airy, extremely detailed and very focused in the lows. Its midrange is not as warm and plummy sounding as the Elation's and it sounds a bit more 'shouty' very close up, but the P28 is still plenty

The sound it produces is **airy, extremely detailed and very focused** in the lows

could want with less need to 'finesse' the tone with equalisation.

Output levels remain consistent as you switch between patterns, but the tone does change. Figure-8 has the most noticeable colouration with a slight hollowness to the midrange. Cardioid produces the fullest mids while omni sounds open and natural.

On acoustic instruments omni is pretty breathtaking, and since there's no proximity effect you can get the P49 very close to the source. For us the 'sweet' selection for vocals would be one of the three positions between cardioid and omni – assuming your recording space isn't too ambient – because it fine tunes the proximity effect for more clarity and less low mid boom.

smooth enough to keep things musical rather than 'forensic'.

The upper midrange lift combined with the airy treble sheen reminded us of great AKGs like the C28 and C60, and the P28 is one of those microphones that makes life easy for an engineer. Regardless of where you place it, the P28 always sounds good and we found it impressive for clear and breathy vocals as general instrument recording.

It can be said that two more vintage boxes have been ticked, so maybe John Peluso will turn his attention to the long lamented Schoeps 221 and the AKG C24. We live in hope. **MT**

MT Verdict

- + Wonderful tone
- + Negligible noise floor
- + Fine build quality
- + Suspension mounts included
- + High quality connectors
- Omni capsules are extra (P28)

Somebody has to meet the demand for microphones that the original companies are no longer willing to manufacture, and the Peluso P49 and P28 more than fit the bill.

9/10



SONOKINETIC Capriccio – Vigorous Orchestral Sampling

Sonokinetic is renowned for its excellent sample-based orchestral sample libraries and Capriccio looks like its best yet. **Keith Gemmell** gets lively...

Capriccio is the latest product in what has become an evolving line of phrase-based orchestral sample libraries from Sonokinetic. First came Vivace, followed by Minimal and Grosso, all of which have built a solid reputation with cinematic composers and producers.

If you're already familiar with these releases, Grosso in particular, you'll soon get the hang of Capriccio because both libraries share an almost identical interface and many features. We reviewed Grosso in MT138, so we'll concentrate mainly on the new features in Capriccio and the key differences between the two products.

Pick a phrase

The library is grouped into five separate categories: Strings, Woodwinds, Brass, Percussion and Melodic Percussion. It's worth noting that the Choir and the Transition Builder have not been carried over from Grosso.

To find a suitable phrase, graphically shaped icons are used, which give some

Details

Price €299

Contact via website

Web

www.sonokinetic.net

Minimum System Requirements

Kontakt 5

Key features

- 16 and 24-bit versions
- Five recorded orchestral sections
- Strings: 52 players
- Woodwind: 12 players
- Percussion: Six players
- Melodic percussion: two players
- Brass: 15 players
- Four recorded microphone positions

idea of its melodic and rhythmic content. However, with so much material to choose from in Grosso, finding something suitable could take some time. This procedure has been improved with instant audio auditioning from the Phrase Picker window. To view the notes, it's a straightforward matter of clicking and peeking at the short score that's provided for each pattern.

Once in the Score View, by clicking another button, you can now drag and drop Capriccio's midi data into your DAW, which not only provides you with a piano roll view of the phrase but also the ability to edit the data for use with other sounds in your composition. This is a very welcome addition that opens up all kinds of creative possibilities.

Musically, Capriccio is a continuation of Grosso with the accent firmly on the cinematic genres. The phrases are triggered by playing triads with the left hand. They can also be harmonically modified on-the-fly with the right hand. Capriccio was recorded in 4/4 time as opposed to Grosso's 12/8 time signature, which some users found frustrating. The phrases provide an excellent basis for further inspiration, but entire pieces can be constructed using just the given material.

Adjusting volume, panning, crossfade times and microphone

Alternatives

NI's Action Strings (€299) is similar to Grosso, with short ostinato phrases selected with the left hand, and pitch controlled with the right. It is, of course, strings only. Hollywoodwinds (\$199) is, as you might expect, wind-only, but contains runs, phrases, chords, textures, trills, FX and full ensemble patches.

positions remains a simple matter in the main GUI. Phrase sample and release sample volumes remain linked by default but can now be unlinked and adjusted independently. Another new feature is the sample offset function that can be subtly applied for corrective use or drastically for creative use, such as polyrhythms and syncopation.

Ups and downs

Runs are a common ingredient of much of the orchestral cinematic music we hear today. However, playing them and getting them to fit an existing tempo is notoriously difficult. Where Grosso featured a brass and woodwind transition builder, Capriccio has a 'Runs Instrument' for woodwind and strings. An intelligent engine ensures that runs of different lengths will be played together and the woodwinds have a set of subtle variations. The Runs Instrument itself is played in a similar way to the main instrument with major and minor triads: having them played for you and fitting the song tempo exactly is a great help if you happen to be a budding John Williams.

The big question for existing Grosso users is, will they benefit from adding Capriccio to their toolbox? We think 'yes'. Both programs are brilliantly implemented, highly inspirational and share the same basic architecture. Capriccio, though, is larger with a bigger sound and a more robust performance. It also features all new content. For those new to phrase-based sampling who want to put their toes in the water, Capriccio is the best you can get. **MT**

MT Verdict

- + Musically stimulating
- + Runs Instrument
- + Quick scoring

- Full PDF score costs extra
- Resource hungry
- Limited mic mixing

If you compose cinematic orchestral music and you're suffering from writer's block, spend half an hour with Capriccio – it works wonders.

10/10

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DetailsPrice [Via website](#)

Contact

Et Cetera Distribution
Ltd 0161 456 7597

Web

www.acoustica.com

System Requirements

1.5 GHz CPU, 1 GB Ram
(2 GB or more)

Recommended)

Windows® 8,
Windows® 7, Vista
and XPSound Card, USB, or
Firewire sound device**Key features**

- Unlimited audio and MIDI tracks
- 32 and 64-bit versions
- Over 7000 loops
- Bundled effects and instruments
- Full automation and MIDI control
- Audio warping and pitch shifting
- Performance Panel
- ReWire hosting
- Scoring and video editing support

Sometimes you want all the features without the price tag. **Hollin Jones** finds out if Mixcraft Pro 7 is as good as it sounds...

The DAW marketplace is probably more competitive than it's ever been before with a fair few contenders jockeying for position at different price points. Occasionally your computing platform of choice also dictates what options are open to you, hence Logic's popularity on the Mac for example.

There are more Windows-only DAWs, of which Mixcraft is one, and this has now reached version 7. It comes in two versions, both of which are competitively priced, and here we're looking at the Pro version which still comes in at well under two hundred dollars. The regular version is under \$100 and has virtually all the core functionality but fewer plug-ins.

A modest download, the app is authorised online and you can be up



and running in a few minutes. Its design isn't perhaps as slick as the big players though it's certainly functional and doesn't generally impede your music-making at all. It's probably more along the lines of Tracktion or Reaper in terms of its graphical feel but this isn't necessarily an issue since sometimes simpler can be better.

DAWs occasionally go overboard with the iconography and Mixcraft is pretty easy to navigate, which is a plus. It's also worth noting that its system

Alternatives

Sonar is also Windows-only and comes in several versions, with the mid-level Professional version being comparable in price to Mixcraft Pro 7 at \$199. You get a whole bunch of plug-ins and perhaps a slightly more fiddly interface, but more functionality overall. Cakewalk has a new pricing and membership scheme in place which you may want to check out before making a decision (see p10).

can show project information, a MIDI or audio editor section, the mixer or your audio and loop library. The lower section can be undocked which is handy if you have a second screen for getting a better overview of the entirety of a project. You get unlimited audio and MIDI tracks in both versions of the software and it comes in 32 and 64-bit versions, with the 64-bit version also able to host 32-bit plug-ins. VST 2.4 effects and instruments are supported with delay compensation and this

It's probably more along the lines of Tracktion or Reaper in terms of its graphical feel

requirements are very lenient by modern standards, and it will run on versions of Windows as old as XP and needs only a 1.5GHz CPU and 1GB RAM as a bare minimum. Although most people will be running far newer systems than that, it's good for those with aged machines to know they're not left completely out in the cold. It also happens to be localised in 16 languages which is likely to increase its international appeal.

Look and feel

The layout of the software is fairly conventional, with a tracklist to the left, a project timeline to the right and a popup section along the bottom that

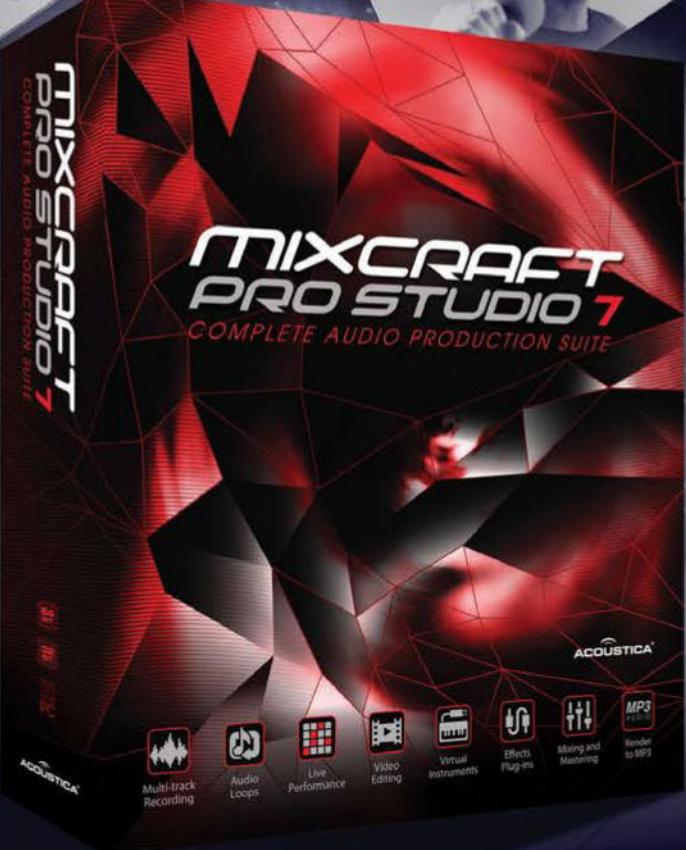
includes MIDI effects like arpeggiators. Acidized WAV files and GarageBand AIFF loops can be imported and you get over 7000 loops, effects and samples with both versions.

Audio and MIDI can be recorded and edited easily and there's hitpoint-based audio warping as well as the ability to drag samples from a project into one of the bundled sample plug-ins with slicing so you can create your own playable instruments quickly and easily. Audio quantizing and time and pitch stretching are also available and it's all well implemented and not difficult to figure out. Automation for any track is easily accessible as well and there's a clever Performance mode where you



“If you’d rather spend time working on your tracks instead of browsing through technical manuals, Mixcraft Pro Studio 7 is the perfect blend of simplicity and sophistication.”

– BedroomProducersBlog.com



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→ can drag loops and clips into a grid where they will sync and can be triggered from a MIDI control surface such as the natively-supported Novation LaunchPad.

Synths and sounds

The bundled plug-ins are good and cover a wide range of dynamic and creative effects as well as classic synths, strings, pianos and beats. The Pro version has quite a lot more

useful tools available via a right click contextual menu.

The software has a few extra tricks up its sleeve that you might not expect from such a cost-conscious package. Musical notation is supported for writing and printing sheet music and there's support not only for digital video playback inside a project but also transitions, effects, titling and editing.

It's not perhaps the 'pro' video editor it's billed to be but still far in advance of

Mixcraft is a surprisingly advanced DAW at a very attractive price

including tape emulators and mastering plug-ins, and a direct comparison is available online.

Accessing and editing the plug-ins could be made a little simpler as, at present, it requires a fair few clicks to get to an actual interface, but this is a minor quibble.

The mixer is fairly conventional but provides access to all the controls you need to mix your tracks and has some

the basic video functionality in most higher-priced DAWs. Being able to cut and process video inside your DAW while scoring or editing sound is a huge bonus, and saves you having to buy a separate application and spend ages rendering. MIDI controllers can be assigned and there's multi format export, CD burning and ReWire hosting and a free remote app for Android and iOS among other things.

Mixcraft is a surprisingly advanced DAW at a very attractive price. It's straightforward to use and even if it may lack a little visual sophistication, it has the features and functionality where it matters. **MT**

MT Verdict

- + Great functionality
- + Very affordable
- + Interface is simple but workflow is good
- + Good plug-in set, especially in Pro version
- + Scoring and video editing support a nice bonus
- + Audio and MIDI tracking and editing work well
- + Searchable dropdown sections
- + Good export options

- Not flashy-looking, if that bothers you
- No VST 3 support at present
- One-click access to plug-in interface would be nice

A great alternative to the big names, Mixcraft Pro 7 punches above its weight and is a seriously affordable music-making solution for anyone using Windows.

9/10

MicSwap Pro

Publisher Future Moments

Price £13.99

Contact [Via website](#)

Web [www.micswap.com](#)

As the iPad becomes a genuinely capable platform for making music, new kinds of apps are starting to appear. MicSwap is one of these: it's compatible with any iOS device that can run iOS 7.1 or higher and aims to emulate a range of high end studio microphones.

It's fairly simple to operate: you fire it up and either use the internal mic or connect an external one (only available in the Pro version), or import audio from another app or from iTunes via file sharing. You can monitor your input – so headphones here are a must – and then record audio through any of the virtual mics.

The free version of the app lets you add individual mics into the mix through separate purchases at around 99p each. A series of 'environments' is available too, representing real physical spaces in which to place your sound.



Again, these are all bundled with the Pro version.

Audio is captured internally and you then get a list of takes, like in a voice memo or field recording app. From this list you can perform basic trim edits on a clip and swap the current mic for any other model, which would suggest that the processing is being done as an insert and is not yet glued down onto the take. You can also export your recording from here to a variety of destinations including SMS, social media, Soundcloud, iCloud, email or choose to open it with a compatible app installed elsewhere on the device. You can also copy it with Audio Copy and paste it into a compatible app.

The missing feature here is Inter-App Audio compatibility, which would seem like the most obvious use for it. With the ability to link the app to GarageBand or something similar, you could get realtime mic emulation inside your mobile DAW... **MT**

MT Verdict

An interesting app with some good mic emulations but needs Inter-App Audio to really unlock its potential.

7/10



“So much more
than just a mixing
processor”

Computer Music (July 2012)

Saturn

Distortion and saturation play a very important role in music production. From subtle, clean and warm tube or tape saturation to the wildest multiband guitar amp effects: FabFilter Saturn delivers!

www.fabfilter.com





MACKIE CR3 & CR4

Details

Price CR3 £100;
CR4 £119

Contact
Polar Audio
01444 258 258
Web
www.mackie.com

Key features

- 50 watts of clean, articulate stereo sound
- 3in polypropylene-coated woofer (CR3)
- 4in polypropylene-coated woofer (CR4)
- 3/4in ferrofluid-cooled silk-dome tweeter
- Audio inputs – balanced TRS jack, unbalanced RCA
- Aux-in mini jack
- Phones socket mini jack
- Acoustic isolation pads
- 1/8in to stereo RCA cable
- 1/8in to 1/8in cable for smart phone/media player

Responding to the demand for multimedia computer speakers, Mackie has introduced the Creative Reference Multimedia Monitor Series. **Huw Price** tests the CR3 and CR4...

There has been a noticeable trend towards active speakers that fall halfway between old-style computer speakers and budget nearfield studio monitors. Considering the bewildering range of activities we conduct on our computers these days it's hardly surprising. Sometimes a full-blown monitor system is overkill when you just want to plug in and play.

It's probably fair to say that the Creative Reference series is not designed for critical listening applications in commercial studios. The CR3 and CR4 are really intended as desktop speakers for bloggers,

podcasters, YouTube uploaders and video editors – not necessarily serious music makers. But that said, there's no reason they can't function as basic monitors or for those who are just starting out in home recording.

Creative impulse

Although similar in many respects to conventional active nearfields, the design criteria for these Creative Reference speakers are somewhat

Sometimes a full-blown monitor system is overkill when you just want to plug in and play

different. There are no frequency shaping or equalisation switches and only one speaker from each pair is active. The not inconsiderable trade off is ease of use and a wider than usual set of connection options.

The bundled accessories include acoustic isolation pads to minimise boomy bass and provide an up or down tilt for focused listening, a 1/8in to

Alternatives

The Samson Media One 3a (£43.39 pair) and the Samson Media One 4a (£57.61 pair) share many of the same features as the Mackies. Alternatively there's the Alesis Elevate 3 (£59.10 pair) or the Behringer MS20 (£89 pair) and MS40 (£103 pair) with digital inputs and multiple analogue inputs with individual volume controls. The Samson Studio Dock4i (£106 pair) has USB input and an iPod dock/charger plus phones, aux input and a volume control on the front.

stereo RCA cable to connect computer output to speakers, as well as a 1/8in to 1/8in cable for smart phone or media player connection.

The CR3 and CR4 also come with a generous length of speaker cable. The active enclosure contains the amplifiers for both the left and right sides and there's a volume control on the speaker baffle. Users can decide if they want the 'master' speaker to be placed on the left or right and there's a Position Select switch so the speaker knows where it is.

Fronting up

The volume control doubles up as an on/off switch, and sockets for headphones and Aux input are also located on the front panel. This makes it about as simple as it gets to hook up a smart phone to the speakers. Other options include balanced TRS jack and unbalanced RCA sockets labelled for left and right. Both models feature small footprint all-wood enclosures with smooth high frequency waveguides and rear ports to bolster the bottom end.

The CR3 has 50 watts of power to drive a 3-in polypropylene coated woofer and a 3/4in ferrofluid cooled silk-dome tweeter, and the frequency range is given as 80Hz–20kHz. In

contrast the CR4 has a 4in woofer and a slightly larger enclosure that lowers the bass to 70Hz. In all other respects these models are identical.

Since MusicTech's primary focus is recording equipment, we lined up the CR3 with a similarly sized active studio monitor for a comparison test. To be honest, we weren't expecting the CR3 to compete as such, but it was felt that



this would reveal what compromises, if any, were involved.

Testing times

The CR3 acquitted itself very well. The overall sound was open and transparent with a nicely airy treble. The high bass roll off point was apparent because kick drums do lack chesty thump, but the response was fast enough to convey bass lines with the notes and timing of grooves fully intact.

Imaging was also noticeable for its crisp focus and solidity as well as an impressively deep sound stage. However the CR3's limitations become apparent when they're pushed hard because material with prominent and deep bass parts induces audible turbulence around the port openings.

The CR4 also suffers from port chuffing but the extra 10Hz in the low frequency range is clearly audible and makes this a slightly better balanced

speaker. They're not miles apart, but we felt that the CR4 was that bit smoother and more refined. The midrange was also a little fuller and more natural.

Even so, both these Mackie monitors were very pleasing to listen to and offer sensible features for a range of uses. If space is at a premium the CR3s will do a very decent job, but we think the CR4 is well worth the extra £20. **MT**

MT Verdict

- + Enjoyable sound
- + Decent power
- + Front mounted volume/power switch
- + Light and portable
- Port chuffing
- No EQ adjustment
- No Bluetooth or USB

Both these Mackies produce a pleasing sound with plenty of flexibility and decent amplification power, but there are plenty of competitors offering extra features at the same price point. So do your research.

CR3 7/10

CR4 8/10

Touchable 3

Manufacturer ZeroDebug

Price £18.99

Contact [Via website](#)

Web www.touchable.com

Ableton Live is really well catered for when it comes to remote control, be it from hardware or from an iOS app. touchAble is one of the longest-established Live controllers on the iPad and iPhone platform, and with version 3 it's arguably the most powerful too. It's slick and responsive: to get up and running you install a small server app and some scripts on your Mac or PC, then connect from the iPad either over a regular or ad-hoc wireless network or a USB cable.

There's a ton of new stuff including 42 new templates for all of Live's instruments and effects (although these are an in-app purchase), streamlined and improved modular interface, virtual keyboards and scales, effect and parameter controllers with real physics and an excellent level of control over your Live sets. With Link Mode you can now combine two or

more iPads or iPhones to create one big control surface which is a great addition. Devices in Racks are now supported too, so you can tap to open whole racks complete with all the controls of the constituent modules.

touchAble is an incredibly versatile app, even letting you build your own custom templates and record and edit MIDI remotely. More or less anything you might want to control about a Live set is available here. If all you're looking to do is launch clips there are simpler apps available, but this is for real performers who want to play, record and edit and really get the most out of Live. It costs a little more than some apps but it's much more powerful than most. It's even a free upgrade for existing users, and a sound investment for new ones... **MT**



Excellence

10/10
MusicTech

MT Verdict

An extremely comprehensive way to get complete control over your Live sets.

10/10



APOGEE Ensemble Thunderbolt

Apogee has updated the Ensemble with Thunderbolt 2 and a host of brand new features. **Mike Hillier** scales the heights...

The Apogee Ensemble Thunderbolt is the successor to the very popular Apogee Ensemble audio interface. The flagship new feature is of course the replacement of the old FireWire interface with the newer, faster Thunderbolt interface. However, this is far from being the only change to the new Ensemble.

Apple has completely dropped FireWire in favour of Thunderbolt on new Macs – however, Thunderbolt is still absent on most consumer PCs. Some custom PC manufacturers and many adventurous PC builders have added Thunderbolt ports, but if they were hoping to use the Ensemble they'd best turn away now, as Apogee has only written Mac OS drivers for the unit.

The drivers it has written however, are something special indeed. Eschewing standard CoreAudio for custom drivers, Apogee has managed to get latency down to a staggering 1.1ms at 32 samples.

Gather round

The Ensemble Thunderbolt is well equipped when it comes to I/O. The back panel houses no less than eight analogue inputs, the first four of which

are on XLR/jack combi ports, while the last four are XLR only. On top of which, the first two channels have send and return insert points on jacks. Analogue inputs 9 and 10 are actually a single doubled mono signal from the built-in talkback mic on the front panel, and 11 and 12 are the front hi-Z inputs, adding up to a slightly confusing 11 total analogue inputs.

BNC Worldclock I/O is also included alongside two Thunderbolt 2 ports – enabling you to daisy-chain the Ensemble Thunderbolt with other Thunderbolt devices or a display. Two headphone ports on the front round out the connectivity options, each with its own dedicated level control.

At over £2,000 for the Ensemble Thunderbolt it's a little disappointing to discover that it doesn't come with a Thunderbolt cable – Sonic Distribution had to send one over separately. Thunderbolt cables are still fairly pricey – at the time of writing the Apple Store stocked a 2m cable for £35 – but leaving one out of a £2,000 device is unnecessary penny pinching.

Avengers Ensemble!

The Ensemble Thunderbolt can be controlled directly on the interface. There are buttons to select each of the ten analogue inputs (excluding the talkback), and a dial to adjust gain. To change settings on an input, hold the button and you enter a menu, which you can adjust to change input level, soft limiting, polarity, filters, etc. The options change slightly depending on the input. Additionally, there are four buttons, assignable in the Maestro software, which can also be used to control the hardware. By default they control mono/stereo playback, meters, talkback and headphone mute.

The eight mic preamps sound incredibly clean. They use what Apogee

■ The results are stunning, with up to 75dB of gain and an incredibly low noise floor ■

Analogue outputs are a little simpler, with two balanced TRS outputs, a D-Sub for outputs 3-10 which are all on the rear, and 11 and 12 are again the front panel guitar outputs. Additionally digital I/O on the rear includes two ADAT/SMUX/SPDIF optical ports in each direction as well as a pair of coaxial S/

calls Advanced Stepped Gain, which switches between multiple op-amps to achieve the cleanest possible tone. While one op-amp might have great performance at low-levels, it might start to break up with more gain, so the Advanced Stepped Gain automatically switches to a different op-amp.





an incredibly low noise floor. If you're looking for colour on your preamps however, look away. These are clean and clear all the way.

The guitar inputs are a different story: to give a more tube amp-like performance the two guitar inputs use Class A JFET circuits to subtly enhance the signal. This is very subtle however, just enough to make amp simulators shine, rather than replace them entirely. The guitar I/O has two modes. The first and most obvious is to use the outputs as separate re-amp outputs, sending a pre-recorded signal out of the DAW at guitar-level into an amp, or even just a guitar pedal and back in via the guitar inputs. The second mode is for

Alternatively

The Ensemble Thunderbolt has a staggering variety of I/O options, but if you just need to get audio in and out, the Lynx Aurora 16 has 16 channels of balanced analogue inputs on D-Sub in both directions and can be equipped with USB 2, FireWire, Thunderbolt or even Avid's DigiLink ports. The UA Apollo has four mic preamps and eight analogue I/O on TRS jacks, and can also be equipped with Thunderbolt. Additionally, the Apollo is equipped with either a Duo or Quad UAD DSP 2 processor.

real-time use, and enables you to simply track the dry, DI'd signal, while routing to an amp, using the output as a "thru". We'd love to see more interfaces incorporating this kind of I/O option, as we frequently use guitar pedals while mixing, on sources as varied as drums

and vocals to get some colour that wouldn't be possible with plug-ins or conventional recording gear.

The Ensemble Thunderbolt is a fantastic interface – it has plenty of I/O options, making it ideal for high-end project studios. With this, and only a couple of other choice bits of outboard, you could be very well set up to record almost anything. **MT**

MT Verdict

- + Clean mic preamps with up to 75dB gain
- + Two guitar I/O for re-amping
- + Built-in talkback
- + Exceptionally low latency

- Mac only
- No MIDI I/O

The Ensemble Thunderbolt fills just about every basic studio I/O requirement, and with exceptional quality. This is an interface to be proud of in your studio.

9/10

Tiny Thunder Audio

 A black and white photograph of a person sitting at a desk in a studio, facing a computer monitor displaying a digital audio workstation interface. The studio is filled with various pieces of equipment, including speakers and a keyboard. Above the person, three large, red, wedge-shaped acoustic panels are mounted on the ceiling. The overall atmosphere is professional and focused.

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Mastering with UAD Plug-ins

Publisher Groove 3

Price \$35

Contact via website

Web www.groove3.com

Although you'll never beat a true hardware mastering job carried out by a pro, you can get some great results using the analogue modelled UAD plug-ins. Engineer Matt Whatley and Groove 3 take a look at using a range of UAD plug-ins including the Ampex ATR-102, Brainworx BX EQ, Shadow Hills Mastering Compressor, API 550A, Tonelux Tilt EQ, Precision K-Stereo, Precision Limiter and more. There are nine chapters in total, with the bulk of the tutorial working its way through using different processors on a single rock track. Whatley explains each decision as he explores the plug-ins in



- Key features
- Mastering techniques using UAD plug-ins
- 9 videos, 73 minutes
- Presented by Matt Whatley
- Includes EQ, compression, limiting, stereo control and more
- Watch online, download or stream

reasonable depth, with well paced A/B examples so that you can clearly hear the affected and bypassed versions. There's also an additional video at the end that looks at how to tackle a mix with an overly prominent vocal. **MT**

MT Verdict

A well presented, concise and relatively detailed look at using a range of UAD plug-ins to subtly enhance a mix and create a pro-sounding master.

8/10

Synth Explorer SH-101

Manufacturer Loopmasters

Price £14.95

Contact info@loopmasters.comWeb www.loopmasters.com

Volume 2 of the Synth Explorer collection includes 104 arp and sequencer loops recorded direct from the SH-101 with varying degrees of processing and effects to spice things up. It's quite refreshing to have acid style loops at 174bpm as you don't often hear them at this tempo, and you're also presented with plenty at 140bpm for a more techno friendly speed. All the loops have a squelchy rawness, although – given that one of the strengths of analogue is to have subtle variations over time – it would have been nice if they were a little longer than just two bars. Finally, there are some fantastic bass, synth and FX hits with accompanying instruments, plus some fairly average drum



- Key features
- Loops & hits created with a Roland SH-101
- 377MB of 24-bit/44.1kHz Audio
- 122 Sampler patches for Kontakt, HALion, Kong, EXS24, NN-XT & SFZ
- 104 Sequencer & arp loops at 140 and 175bpm
- Varied sounds capture the raw nature of the original synth

hits, although to be fair this isn't the instrument's forte. **MT**

MT Verdict

A great library of enjoyable squelches and bleeps for dubstep, DnB, acid and electro producers that captures the raw energy and versatility of the instrument.

8/10

Geode Melodic Dubstep & Beyond

Publisher Loopmasters

Price £19.95

Contact info@loopmasters.comWeb www.loopmasters.com

Choice
9/10
MusicTech



- Key features
- 332MB of moody, subtle loops and hits
- Available in WAV, Apple Loops, Live and ReFill formats
- 73 Sampler patches for EXS24, HALion, Kong, Kontakt, NN-XT and SFZ
- 95 to 178bpm
- Produced by Geode

sounds, chords and pads, with the only let down being a folder of slightly odd FX. The production is detailed and solid, although at times a little in-the-box sounding. Overall this is a good value pack of interesting, inspiring and original loops and hits. **MT**

MT Verdict

An inventive and varied collection of crisp loops and excellent hits. It's also nice to hear a dubstep pack with a bit more subtlety and detail.

9/10

Float Chillwave Guitars and Loops

Manufacturer Mode Audio

Price £18

Contact via website

Web www.modeaudio.com

- Key features
- 606MB of 24-bit audio
- 159 guitar, drum, synth and bass loops
- 70 to 122bpm
- 42 key labelled MIDI loops
- 10 hazy chillwave construction kits

layered on top of each other. The dreamy effected versions sound excellent, and there are also separate folders for the tails to aid with flexibility. **MT**

MT Verdict

Very well thought out and presented pack full of gorgeous sounding, hazy guitar riffs, and plenty of options to aid the arrangement of your tracks.

8/10

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INTERVIEW WITH DAN MARDAN

Dan Mardan On The Making Of 'Live Deep Jazz House Vol. 2'

LIVE DEEP HOUSE JAZZ VOL 2 - INTERVIEW WITH PRODUCER DAN MARDAN



niche audio PLANET 808

PLANET 808 MASCHINE EXPANSION & ABLETON LIVE PACK - FROM NICHE AUDIO



LINDELL AUDIO CHANNEL X CHANNEL STRIP PLUGIN - PRODUCT REVEAL WITH ROB JONES



ABLETON FREEZE AND FLATTEN

An Explanation Of Ableton's Freeze & Flatten Functions

ABLETON LIVE FREEZE AND FLATTEN EXPLAINED - WITH THE DSP PROJECT



iZOTOPE IRIS 2 SAMPLE SYNTH - SHOW & TELL WITH ROB TALBOTT



RENDERING IN REAPER

How To Achieve High Quality Mixdowns In Reaper

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K-Board

Manufacturer **Keith McMillen Instruments**

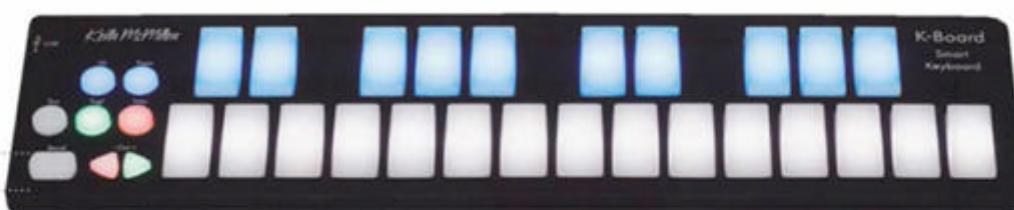
Price **\$99**

Contact **MSL Pro: 0207 118 0133**

Web www.keithmcmillen.com

Now this is very cool. How many times have you wanted the tiniest of keyboards when you're composing in the tiniest of areas, or with the messiest of desks? Something to play some riffs in while your DAW loops, to get some ideas down quickly or simply doodle and have fun with? And if it has loads of flashing coloured lights, then all the better! Step forward K-Board, the latest offering from Keith McMillen, a designer and musician who makes the gear he needs – we looked at the Qu-Nexus a few issues back, of which this is a simplified version – and one goes on this, his new K-Board, and you might find you need it too...

K-Board plugs into a USB socket for your device (Mac, Windows, iOS and Android) to hopefully see straight away.



Choice
9/10
MusicTech

Key features

- Mac, Windows, iOS, Android
- Two-octave mini keys with lights
- Sustain, Velocity, Tilt, Bend and Pressure modes
- USB lead

As a Logic/MacBook user I expected some trouble, as Pro X has been a bit shaky with some controllers I've tested, but it showed up straight away and I was playing along with one of my (many) looping ideas immediately.

What's also very neat about this is that not only do the keys light up as you play them but keys and octaves are shown along with other info. You can add sustain, toggle velocity, and use the Tilt or dedicated Bend buttons for pitch.

K-Board is compact and rugged. Indeed the makers claim that it's indestructible and that you can drive a car over it – although we didn't make this part of our tests.

It slots very nicely at the front of your laptop and the lead is long enough to play it (slightly more) remotely. While we used it with a laptop running Logic we can also see this being a hugely popular

choice for musicians using tablets and iPads – even phones – as it's certainly mobile enough.

Once in a while a product comes along where you think, why hasn't anyone else executed this in such a successful way before? And K-Board is one of them.

At the recent NAMM show in the States we also saw different coloured versions, so if the black one tested here isn't to your taste there are plenty of other fun options. It's a must-have for any mobile musician and anyone wanting to get ideas down fast. **MT**

MT Verdict

Great idea, fairly cheap and mobile. Flashing lights and playing keys have never been so much fun.

9/10

UDG Creator Laptop stand

Manufacturer **UDG**

Price **€149.95**

Contact [via website](#)

Web www.udggear.com

UDG is making a name for itself in the studio community thanks to its hard cases and useful stands – we gave a great score to one case a few issues back.

This laptop stand seems like a great idea – especially if your studio desktop is as crowded as ours – and fits together easily and is sturdy, although we did feel a little uneasy about entrusting our valuable studio centrepiece to a stand. There are a few issues, as well. If you rest your hands on your work surface when using your touchpad, then using the laptop here involves lifting your arms, so it'll force you to change the way you work. Secondly, we couldn't extend the top to fit a large MacBook Pro, a popular mobile



Key features

- Adjustable laptop stands
- Can be used for any controller
- Easy to assemble

choice for musicians. So, great idea, but check the size of your laptop before purchasing (and your arm muscles). **MT**

MT Verdict

Great idea but doesn't fit our large 15" Mac and you may not feel comfortable raising your arms to use it if you are used to resting them on your desk.

7/10

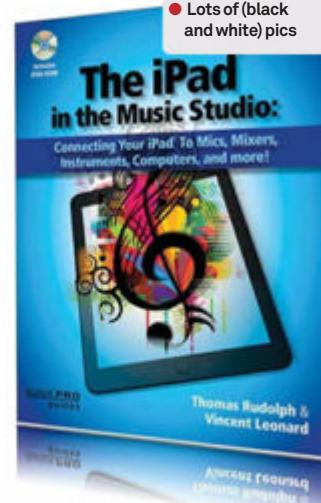
The iPad In The Music Studio

Manufacturer **Hal Leonard**

Price **\$19.99**

Web www.halleonardbooks.com

The latest in Hall Leonard's Quick Pro Guides – and at 220+ pages you have to wonder how thick the 'Slow' version would be – is dedicated to the device that promised to revolutionise music making. Whether that's happening is open to debate, but if you've ever wanted to make more of your iPad in your studio then this is the definitive book. It has the interfaces, the apps and the guides to connecting to pro setups and marketing and distribution your tunes. However, getting a chunky book on such a fast-moving subject might not be your best option. Of course our Top 50 Apps feature online will be constantly updated and all the info is out there already, but it's a great resource nonetheless. **MT**



MT Verdict

Yes, all the information within it is available online and it will quickly date, but it's the comprehensive guide to iPad music making.

7/10

MusicTech FOCUS

LOGIC PRO X



On sale now £8.99 with free DVD. Digital version £5.99.

Available at WHSmith (UK), Barnes & Noble (USA) and all good bookstores in Australia, Canada, and throughout Europe.

Or order online at www.musictech.net/tag/focus

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Six of the best

Hardware ■ Software ■ Mobile Technology ■ Samples

Welcome to the **MusicTech Buyer's Guide** where we round up some of the best products recently reviewed in the magazine. This month a whole range of different **software synths**: from great all-rounders to iOS must-haves...

BEST All-rounder



Rob Papen Blue II

Details

Price £109
(upgrade £35)
Contact T&S:
01837 55200
Web www.timespace.com

The original was released a mere decade ago which seems a lifetime in the history of software synthesis, but last year's update to Blue (the appropriately version-ed Blue II) was a massive hit largely down to its interface, its numerous synthesis options and stacks of sounds. With effectively 12 engines under the bonnet, taking in FM, subtractive, wave-shaping and phase distortion synthesis, plus a good 'couple of thousand' sounds there's almost too much to keep you occupied here...

Reviewer Andy Jones said: "Rob Papen has put so much into Blue II that he clearly wants it to be the only synth you'll ever need so it could be my 'go to' synth for years to come (I can't believe I used the expression 'go to'). He concluded: "*Blue II is any synth you want it to be. A worthy successor to the original and one that will have you tweaking and playing for many a year.*"

Details

Price £26.99
Contact Korg UK,
01908 304600
Web www.korguk.com



BEST Mobile synth(s)

Korg Gadget

Truly, the iOS generation of synths deserves its own Six Of The Best category, which we'll surely come to, but for now Gadget represents not one but a whole suite of synths on your iPad 2 or higher so is one of the best synth packages you can get for the platform.

You get a sequencer to pull them all together (up to 20 tracks depending on how new your iPad is) and a whole range of gadgets (instruments of an electronic nature) named after cities. "You can pick it up and make a banging tune in minutes," said reviewer Hollin Jones, "but there is a depth of programming and editing features as well. For this many well-designed and cool sounding synths, the price is certainly fair."

He then concluded: "*Gadget is a fresh take on iPad synthesis and sequencing from Korg. It is simple enough to use but powerful enough and fun, with some excellent sounds.*"

BEST Hybrid

Native Instruments Rounds

Featuring both an analogue and digital synth engine with up to eight sounds each, Rounds is an initially straightforward beast to tame but has a lot of depth and, when you start to 'animate' those sounds, some superb sonics. "It will take work to make your own patches but you will see that Rounds is capable of some stunning results," said Hollin Jones, and concluded: "*A complex, powerful synth that provides huge sounds and creates clever, dynamic sequences.*"



Details

Price £89 (or part of Komplete 10)
Contact via website
Web www.native-instruments.com

→ **BEST** Classic**Details**

Price £59.95
Contact [Plug-in Boutique](#):
01273 692313
Web www.pluginboutique.com

Plug-in Boutique VirtualCZ

There are, of course, many soft synths that attempt to recreate classic analogue hardware from the 60s, 70s and 80s. You can get classic Moogs, ARPs, Prophets, Roland and Korgs – but one of the best is VirtualCZ as it brings back a more obscure range in the form of the Casio CZ. The originals used phase distortion synthesis that gave them

both an analogue and digital edge and resulted in a surprisingly varied sound. Virtual CZ has the lot – reviewer Andy Jones said: “If you are sick of a sea of classic analogue emulations then this is a must buy. It’s accessible, flexible and a hugely inspirational synth – a must buy to increase your sonic palette.”

“And at just £59.95 it is quite simply the steal of the year. Get it now!”

“If you are sick of a sea of analogue emulations then this is simply a must buy. It’s also the steal of the year...”



BEST Audio mangler

Izotope Iris 2

When does an audio sampler become a synth? When it has the modulation features and synthesis options that Iris offers, that's when. The latest version of Izotope's software features five complex LFOs and 20 oscillator shapes to enable you to extract and synthesise audio over and

over again. Alex Holmes said: “The true value of this instrument is capturing your own sounds and transforming them into playable music, a task made even more flexible with the new modulation system. ***This is a fantastic package and a unique instrument that is more flexible than ever – the sound library is worth the asking price alone...***”

Details

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(£89.95 upgrade)
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01837 55200
Web www.timespace.com

BEST Depth!

Melda MPower Synth

This is not one for beginners to soft synthesis. Featuring multiple oscillators, effects, modulation routing options, and lots of building block utilities this is pretty much any synth you want it to be. Reviewer Hollin Jones said: “It’s a serious synth that rewards some investment of effort but, crucially, it sounds great,” before concluding: ***An extraordinarily powerful synth with literally endless programmability options. Good presets, but design your own sounds to get the most out of it.***

Details

Price €199
Web www.melda-production.com



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A BLUFFER'S GUIDE TO MIXING AND MASTERING

Think mixing and mastering are one and the same? Gen up with **Rob Boffard** who explains everything you need to know...

You may already be familiar with what it means to mix a song, even if you've never tried it yourself. And at some point, you're going to want to stop noodling around with that synth line and actually turn your track into something people might want to listen to.

But there is an additional step. Mixing might seem like a relatively straightforward idea – just balancing the tracks together so they sound good. But not only is there a lot more to it than that, there's also the additional step of mastering. When you're a rookie producer, it can often be quite confusing, and the distinction between mixing and mastering isn't always easy to make out. In this guide we're going to show you the difference between them, and what each step consists of.

Spot the difference

Let's break down the exact difference between mixing and mastering. Mixing is, as we've already mentioned, the art of making your songs sound good. By the time you reach this stage, you've finished composing the elements of your song, and arranging them just how you like them. Now, you need to take those elements, and make sure they sound good when they're played together. You do this by controlling their levels, their pan position, and the strength of the effects on them. At this stage, you're working with a number of different tracks (bass, lead guitar, kick drum, etc). Each of these tracks will have its own settings. At the end of the process, you will (hopefully) have a song that sounds good, and one which you can bounce down into a single file.

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A mixer in Cubase. This is a relatively simple song, with three elements. Note the difference between the individual track channels, and the master fader.

Mastering is where it gets a little trickier. You see, that audio file might sound good on a basic level, and its individual elements might be balanced perfectly to your ears, but it's not quite ready to go out into the wide world just yet. If you've preserved the dynamics of your mix, then it won't be loud enough to compete with other songs. It will sound good, but not great. What mastering

does is sharpen up the overall sound of the song, bringing out certain sonic elements of it to make it appear punchier, warmer and richer. And it keeps the volume consistent throughout, meaning that it will be at home on any sound system on earth. Obviously, there's a lot more to it than this, but that's the general idea.

Simply put, look at it like this: mixing is like painting. You mix different colours together to paint your masterpiece, adjusting their hue and tone until you've got an image that you're satisfied with. Mastering is about taking that canvas and hanging it in a frame. The right frame will complement the painting within it, picking up the different colours and enhancing them, and showing off the painting as a professional product that can stand up in any gallery in the world. You can exhibit a painting without frame, but there's absolutely no reason to do so. And if you're a painter and you disagree, go away and stop messing with our analogy.

In the mix

Mastering, as we'll see, is a little bit of a dark art, so let's talk about mixing first before we get to the complicated bit. If nothing else, it's something you can try right now, in your DAW.

Take a look at the faders first. These control the overall level of each track in a song. Push the faders too high on any given track, and it will 'clip', or distort, overloading the channel. This is a little bit of a hangover from the analogue days, when too much level could literally fry a channel, but even in the digital domain, it's an excellent idea, essential even, to keep your tracks below this point. By the way, you'll notice that all faders run backwards from 0dB. We'd explain why, but the maths involved is just horrific.

So at its most basic, mixing is about balancing these levels so that all tracks can be heard, and no sounds are being masked. If, for example, your bassline is hiding your kick drum, then the first step is to lower the level of the bass slightly, and see if that helps.

There's also a channel known as the master fader, or master out. This fader tracks the overall level of the song. If you play a sound in your DAW, you'll see it reflected here. It's a good idea to keep this below 0dB as well. What you're looking for is to have the levels in this fader peaking at just below its clipping point – a level of -3dB is usually a good place to aim for. This gives the track what's known as 'headroom', and it'll become important when we talk about mastering. (By the way, here's a quick tip: before you start mixing, pull the master fader down a few dB. You'll find it gives you a lot more room to breathe when you are mixing, and afterwards, you can pull it up so that the overall level is at around -3dB.)

Of course, there are plenty more tools available to make your individual tracks sound good. You can pan them left and right, positioning them at different places in the stereo field. You can equalise and compress them, sharpening their individual characteristics. Mixing is something that takes years to master, but →



Here, we're using a compressor to sharpen up our acoustic guitar. EQ, compression, level balancing and panning are all useful tools for mixing.

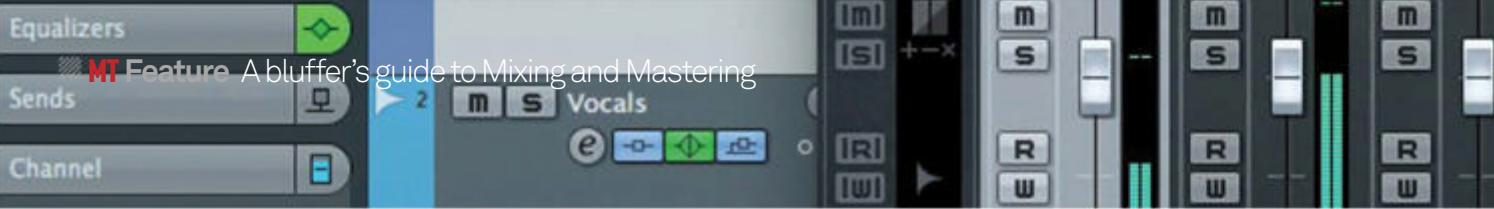
Tech terms

- **CLIPPING:** The point at which the sound on a track will distort. A tiny bit of clipping is not usually a huge problem in the digital realm, but should be avoided anyway.

- **HEADROOM:** The amount of space between where the track peaks, and the clipping point of 0dB. It's always good to have headroom, no matter what you're mixing.

- **DYNAMICS:** The relative loudness of different elements in a song, or the relative loudness of different songs in an album. A range of dynamics is good, but does need to be controlled.

- **MASTER FADER:** The fader which handles all the sounds in a song, and governs the overall song level.



→ as long as you've got the basic principles down, you'll be able to get a handle on it really quickly.

Who's the master?

Mastering is a little different. Chances are, you'll mix at least some of your songs yourself. Getting a well mixed song is a perfectly achievable goal, as long as you have some good monitor speakers and a good room to mix in. But mastering? That's a whole different ballgame. It's possible to master your own music at home, and there are companies like Izotope and Waves that will happily sell you some excellent software to do just that, and which make the process of mastering relatively easy to grasp. But if you're just starting out, we cannot emphasise this enough: get someone else to master your music.

To recap: mastering is the process of taking a song, or a set of songs, and subtly sharpening them up. Mastering will make them louder, evening out the dynamics across them. They will make sure that all



A limiter, or maximizer, is usually the final tool in the mastering chain. It locks in the dynamics of a track, setting it at a uniform loudness.

We cannot emphasise this enough: at first, get someone else to master your music

songs on an album have a consistent sound and level. Mastering will also address issues like fades, making sure that they're consistent, and add metadata to the songs. By the time a piece of music comes out of a mastering studio, it should be ready to compete with any track on the radio.

Most professional mastering engineers do this by playing your song through some seriously high end gear. They're looking for complete transparency: they want to hear exactly what's going on in the mix, as it helps them isolate areas they could improve, or elements they think should be more prominent. Once they've done this, they use even more sophisticated

EQs, compressors and limiters to polish up each song. (Interestingly enough, the term 'mastering' comes from when engineers would put a song on to a master disc, from which all subsequent copies would be made.)

This is only part of the reason that you want to use an external mastering engineer for your songs. In short, a mastering engineer will bring a fresh set of ears to your project. He or she will know how to make you sound really, really good. Good mastering engineers are highly sought-after, highly skilled individuals, and for very good reasons. It takes an amazing set of ears and a dedication to find details to become one. They often have access to gear known for imparting pleasing audio qualities to anything put through it. All of these are very good reasons to trust your mastering engineer.

If you want to make them your friend, then we strongly suggest doing the following: clearly label each of your songs. Make sure there are no effects – at all – on your master fader. Make sure you've left enough headroom in your song (-3dB, remember?) for the engineer to work with; those three decibels are going to give them the space they need to make your songs louder. And if the engineer tells you to go back and remix certain things, do it. They'll be able to hear problems that you might not pick up.

And again: there's nothing to stop you doing this yourself. In fact, we'd recommend trying it out, as it's a good way to grasp exactly what is happening when a song is mastered. Just remember that on a basic home setup, the result is going to be nowhere near as good as it would if you put the song through a professional mastering studio. **MT**



Izotope Ozone is a high-profile, reasonably pricey digital mastering plug-in, and is the kind of tool engineers might use to master a track.

This feature was endorsed by SSR which has been providing professional education training in the audio engineering industry for over 30 years. With campuses in London, Manchester, Jakarta and Singapore, SSR has gained a healthy reputation within the music industry for producing well trained, professional graduates across the globe.

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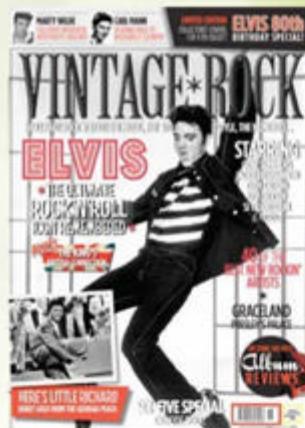
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Show off your studio

(aka 'A tale of three chairs')



We ask **MusicTech** readers to show off their studios and get loads of amazing responses every month. Here are some of the best...

Kooza Production Studio

Interviewee: Loris Venegoni

Contact: loris.venegoni@gmail.com

Key components in your studio?

An iMac 27in with orchestral/cinematic libraries; a UAD Apollo Quad interface plus a lot of UAD plug-ins; Dynaudio BM12 monitors, which in this room sound big and expensive; Empirical Labs Distressor with British Mode; TLA 5051, great on bass and guitars; Korg TR Rack; Access Virus B; Nord Lead 2x; Yamaha Motif XS7; Hammond 1-100 with original Leslie in the other room and upright piano; Korg SP-250 to record MIDI. For vocal fx a TC Voicelive 2. Ableton Push is my best friend, plus a Novation Nocturne and sometimes Impulse 49.

Which DAW do you use?

I own Live 9 suite. I discovered Live while trying to leave Logic and learning how to use Performer. I downloaded the demo just for fun and it blew my mind. The control that it gives you is amazing. No more endless menu searches, hundreds of bounces in place to edit audio clips. I use the arrangement view just like a classic sequencer. I'm not the kind of

producer launching clips or writing in loops, but having every tool the DAW offers is the key that makes Live so intuitive. And every native plug-in is just amazing: great quality, sharp tools and true sound design.

Favourite part of the studio?

Definitely the room. It was designed by Michele Cucchi, the best engineer I could have met in my life. He planned the Radio Deejay studios and Matthew Bellamy's studio here in Como. Flat response, the longest tail I have is about 0.32s. That is why I said the BM12s are like new monitors here – I can use them further than 1m of nearfield. They give you all the bottom end. It's the best room I've ever heard and I'm very, very proud.

How often are you in your studio?

Depends. I study psychology in University and I'm a dancer too. Every time I have a job or I want to produce something I stay all the time I need to. I don't like to 'just to see if something comes out'; that ends in frustration and wastes precious days

of sun when I can go outside and see the world.

How do you use your studio?

For music for my project Kooza and sometimes I write soundtracks for short movies. I'm working on making it available for bands or electronic producers who need a simple and smart place to work in.

Next on your studio shopping list?

I think the second distressor will be the next friend.

What is your dream piece of gear?

I'm afraid it's not gear but a real orchestra. There's nothing like one. I cry just thinking about it.

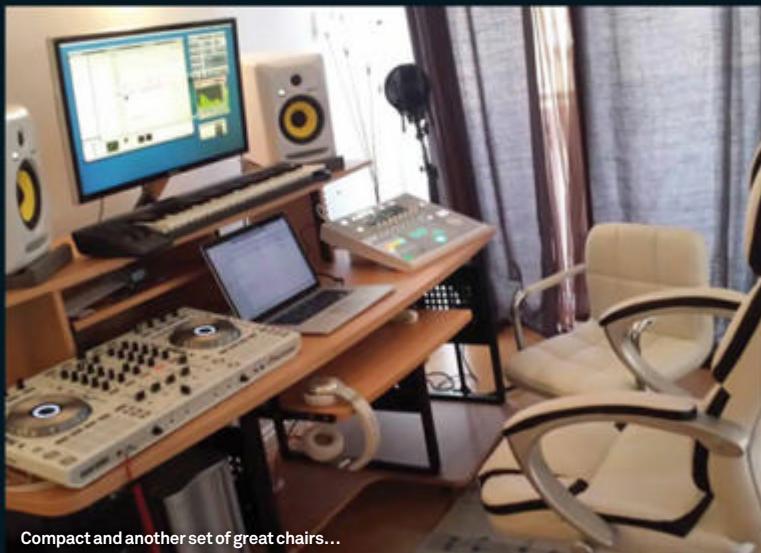
One piece of advice?

If you have the money, build the best room. If not, try DIY. Spend the money you have on great monitors, forget headphones. If you're a genius, you just need something to record sounds, you know what to do. Your studio begins with your ears, so give them the best conditions.

Paul Dawson

Interviewee: Paul Dawson (owner)

contact: dawsonpaul@gmail.com



Compact and another set of great chairs...

What are the main components in your studio?

Pioneer DDJ-SX, Ableton Push, Native Instruments Maschine Studio, M-Audio Keystation, 4K Samsung Monitor, and finally KRK Rokit monitors.

Which DAW do you use in your studio and why?

I use Ableton due to its easy workflow and the open API Max4Live. Max4Live opens up the DAW to a plethora of community developments.

What is your favourite piece of gear and why?

Ableton Push really makes creating music quite easy, giving you the ability to hotswap between any virtual instrument on the fly, keeping you in the desired scales. It also has a superb build quality. You may be looking for some sounds which fit together nicely, and Push gives you the ability to move between tracks and have a live sequencer flowing and ready. It's great for making mistakes as these mistakes can sometimes lead towards a path that makes a song you were never expecting in the first place.

How long do you spend in the studio on average per week?

I guess it's not often enough. I have to balance work and normal life which includes a member of the females species. I guess I

probably spend between five and 15 hours per week if I had to make an average guestimate.

How do you use the studio?

It's all about fun and purely a hobby for me.

Is your setup perfect or is there room for improvement?

Ableton can be problematic at times. Load times and crashes are annoying but these are commonplace in other DAWs.

Next on your studio shopping list?

I have more VSTs than posh women have shoes. I'm waiting for the Moog Sub37 to become available because the modulation capability seems endless. It's at the cutting edge of analogue synthesis and digital technology being combined in a single unit. They're picked up pretty quickly when they become available and supply is short in the UK.

Dream piece of gear?

If I'm dreaming, an A 200E System 7 Buchla would be nice. Why? Just look at it! It has knobs that go to infinity and beyond...

Do you have any advice to people starting out?

Read, read and read. Also, if you're tired, go to bed because you're not hearing everything. Whatever you do when tired is probably going to sound shit when you wake up.



Dave Walker

Interviewee: Dave Walker

E: randy_ralph@hotmail.co.uk



And a slightly frayed chair...

Main studio components?

Yamaha MM6, Novation Bass Station II, Korg MicroKorg, Tascam US2400, Edirol interface, Mac Mini, Focusrite vocal strip; Tannoy, Cambridge and KRK RPK5 monitors; NI Maschine Mk1.

Which DAW and why?

I use Sonar as it was a good price. As I have Mac I'll be going to Logic.

Favourite piece of gear and why?

The Bass Station – versatile and fun.

How long do you spend in the studio?

Only about two days a week. If I had my way then I'd never leave.

How do you use the studio?

For a bit of everything. I've found buskers to work with, do my own stuff and am making jingles and voice-overs for a radio station.

Perfect or room for improvement?

It would be good to get the Tascam working better with the DAW. I'm hoping it will integrate with Logic.

Next on your studio shopping list?

A Focusrite Saffire Pro 56.

Dream piece of gear?

I'd love anything by Moog, Dave Smith or Nord. I'd just love a high end synth!

Any advice to people starting out?

Start off basic and keep adding as you go. Studios don't get built over night. People say, 'you don't need all that gear'. But more gear is more fun, and the more fun I have the more creative I can be. MT

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// GRANULAR PADS & FX

 Size 738MB Format 24bit/44.1kHz WAV, EXS24, Kontakt, NN-XT, Structure

This month sound designer Richard James delves into the strange world of granular resynthesis, with an exclusive pack of 10 multisampled instruments and 200 hits and fx. A large range of sources were used including drum hits, modular sounds, processed drum loops and found sounds, and were loaded into NI's Kontakt and Camel Audio's Alchemy samplers for further processing and manipulation. Playing with the sampling algorithms and dramatically time stretching or shortening the playback creates some incredibly weird and wonderful FX and tones, which are perfect for adding atmosphere or unique textures to your tracks.

SAMPLE LOOPS // ROYALTY-FREE & EXCLUSIVE

// RETRO AMBIENT LOOPS

 Size 373MB Format 24-bit/44.1kHz WAV

Equinox Sounds has supplied an exclusive pack of 55 inspiring loops for creating retro sounding ambient music. All samples have been created with vintage analogue synthesisers, drum machines and instruments and are inspired by Ambient pioneer artists such as Brian Eno, Tangerine Dream, Klaus Schulze and Ashra. You'll find a range of twinkling arpeggios, thick evocative pads and drones, and sparse orchestral percussion, with lo-fi filtering and expansive reverbs for added effect. Tempos are at 100, 120 and 160bpm, and all files have been recorded in 24-bit audio quality. [Web](http://www.equinoxsounds.com) www.equinoxsounds.com

VIDEO FEATURE // 23 MINS

// MASTERING WITH UAD PLUG-INS

 Size 116MB Format gPlayer (included)

Universal Audio's UAD platform and plug-ins have gone from strength to strength, with many top of the range hardware emulations being used by professional mix engineers. In a new tutorial, Groove 3 and Matt Whatley take a look at how to use UAD plug-ins to get a pro sounding master of your tracks. We've got three videos from the course that focus on using the Ampex Tape Machine to help glue the mix, using the Brainworx Modus Equalizer bx1 for M/S corrective EQ, and the API 550A and Tonelux Tilt EQ plug-ins for some gentle EQ shaping. [Web](http://www.groove3.com) www.groove3.com

// SOFTWARE

DEMO//SOFTWARE

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www.robpapen.com



DEMO//SOFTWARE

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www.meldaproduction.com



DEMO//SOFTWARE

NATIVE INSTRUMENTS POLYPLEX (WINDOWS, MAC OS X)

NI's new 8-part drum sampler features extraordinary randomising capabilities that can work on a global, sound or sample level to help add subtle variances to your beats alongside 18 premium effects. www.native-instruments.com

WHITELABEL TENQ MT
EDITION (WINDOWS, MAC OS X) →

An amazing EQ plug-in with a gorgeous hardware accelerated GUI. TENQ features 11 node types, spectrum analyser and true, split and M/S modes. If you like the plug-in, you can donate towards the project at the website.

www.roughdiamondproductions.com/whiteLABEL

FULL//SOFTWARE

A1AUDIO A1STEREOCONTROL
(WINDOWS)

A useful stereo tool for expanding or limiting the stereo width of your tracks when mixing or mastering. Features include a safe bass control for forcing mono below a specified frequency, plus advanced panning modes and mono compatibility. www.a1audio.de



SAMPLE LOOPS//ROYALTY-FREE

//90s HOUSE, NEUROFUNK BASS AND MORE



Size 254MB Format 24-bit/44.1kHz WAV
The ever prolific Loopmasters has provided another cutting-edge collection of samples taken from the latest batch of releases. First up, to go with the reviews in the Mini Reviews section of the mag, we've got deep and spacious loops and drums taken from Geode Melodic Dubstep, alongside squelching bleeps and synth loops from Synth Explorer SH-101. You'll also find jackin' beats, stabs and basslines taken from classic 90s House, and Mike Vale – Tech House Edge. Finally, for those that like their samples on the dark side, we've got complex, rasping bass riffs from Neurofunk Bass Weapons, and sinister pads and synths, and rolling breaks taken from DLR Specimen Y Drum & Bass. **Web** www.loopmasters.com

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VIDEO FEATURE / 23 MINS

GROOVE 3

//MASTERING WITH PLUG-INS

373MB SAMPLES / ROYALTY FREE & EXCLUSIVE

//RETRO GOUTNOX AMBIENT LOOPS

VIDEO TUTORIALS//88 MINS

//COMPRESSION, LOGIC 10.1.0

POINT BLANK

Size 432MB Format MOV

Compression is one of the most essential, and yet hardest to learn aspects of music production. This month, Point Blank's Head of School JC Concato takes an in-depth look at different aspects of compression including parameters, peak and RMS, and different types such as VCA, FET and Opto with examples using Logic X's built-in compressor. Speaking of which, we've also got a separate video with Concato exploring the new features in Logic 10.1.0, including the new compressor GUI, Drum Machine Designer, new MIDI editing functions and more.

Web www.pointblanklondon.com

VIDEO FEATURE//22 MINS

//LOOP+

Size 785MB Format MOV

This month's video selection from Loop+ includes a trio of software videos, plus an Ableton Live QuickTip. Producer and Plugin Boutique clinician Rob Talbott gives an overview of the sounds available with iZotope's Iris 2, along with guides on the LFO Tool envelope shaper from Xfer Records, and Rob Papen's RAW. There's also a QuickTip video from Loopmasters' Andre Touhey, who looks at how to use the Ableton Auto Pan effect for quick sidechain envelope shaping. Copy all the videos to your HD for best playback. **Web** www.loopmasters.com/loopplus/



Features Overview With Rob Talbott

iZotope

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